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SESSIONAL PAPERS

VOL. XXXI.—PART VII.

FIRST AND SECOND SESSIONS,

NINTH LEGISLATURE

OF THE

PROVINCE OF ONTARIO.

SESSIONS 1898-9.

TO LONDON:
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1899.



LIST OF SESSIONAL PAPERS.

ARRANGED ALPHABETICALLY.

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Agricultural and Horticultural Societies, Report	36	"
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Bee-Keepers Association, Report	24	<i>Printed.</i>
Birds and birds nests, collection of	71	<i>Not printed.</i>
Births, Marriages and Deaths, Report	32	<i>Printed.</i>
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Central Prison, Rope manufacture at	58	<i>Not printed.</i>
Childrens Protection Act, Report	17	<i>Printed.</i>
Common Gaols, Prisons, etc., Report	12	"
Corundum lands, O. in C	46	<i>Not printed.</i>
Crown Lands, Report	5	<i>Printed.</i>
Deaf and Dumb Institute, Report	16	<i>Printed.</i>
Deer, shooting of in water	70	<i>Not printed.</i>
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" Minutes of Department of	44	<i>Not printed.</i>
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TITLE.	No.	REMARKS.
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LIST OF SESSIONAL PAPERS.

Arranged in Numerical Order with their titles at full length; the dates when Ordered and when presented to the Legislature; the name of the Member who moved the same, and whether Ordered to be Printed or not.

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- No. 1.. Return from the Records of the General Election to the Legislative Assembly in 1898, shewing : (1) The number of Votes polled for each Candidate in each Electoral District in which there was a contest. (2) The majority whereby each successful Candidate was returned. (3) The total number of Votes polled in each District. (4) The number of Votes remaining unpolled. (5) The number of names on the Voters' List in each District. (6) The population of each District as shown by the last Census. Presented to the Legislature, 3rd August 1898, and also :—Return from the Records since the General Election to the Legislative Assembly in 1898, shewing :—(1) The number of Votes polled for each Candidate in each Electoral District in which there was a contest. (2) The majority whereby each successful Candidate was returned. (3) The total number of Votes polled in each District. (4) The number of Votes remaining unpolled. (5) The number of names on the Voters' List in each District. (6) The population of each District as shown by the last Census. Presented to the Legislature, 1st February 1899. *Printed.*
- No. 2.. Report of the Minister of Education for the year 1898, with the Statistics of 1897. Presented to the Legislature 3rd March, 1899. *Printed.*

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- No. 3.. Public Accounts of the Province for the year 1898. Presented to the Legislature 8th February, 1899. *Printed.*
- No. 4.. Estimates for the year 1899. Presented to the Legislature 8th February 1899. *Printed.* Estimates (supplementary) for the year 1899. Presented to the Legislature 30th March, 1899. *Printed.*
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- No. 7.. Report of the Inspector of Division Courts for the year 1898. Presented to the Legislature 23rd February, 1899. *Printed.*
- No. 8.. Report on the working of the Tavern and Shop Licenses Acts for the year 1898. Presented to the Legislature 15th February, 1899. *Printed.*
- No. 9.. Report of the Commissioner of Public Works for the year 1898. Presented to the Legislature 23rd February, 1899. *Printed.*
- No. 10.. Report of the Inspector of Insurance and Registrar of Friendly Societies for the year 1898. Presented to the Legislature 27th February, 1899. *Printed.*

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- No. 11.. Report upon the Lunatic and Idiot Asylums for the Province for the year ending 30th September, 1898. Presented to the Legislature 23rd February, 1899. *Printed.*
- No. 12.. Report upon the Common Gaols, Prisons and Reformatories of the Province for the year ending 30th September, 1898. Presented to the Legislature 17th March, 1899. *Printed.*
- No. 13.. Report upon the Houses of Refuge and Orphan and Magdalen Asylums of the Province for the year ending 30th September, 1898. Presented to the Legislature 29th March, 1899. *Printed.*
- No. 14.. Report upon the Hospitals of the Province for the year ending the 30th September, 1898. Presented to the Legislature 27th March, 1899. *Printed.*
- No. 15.. Report upon the Institution for the Education of the Blind, Brantford, for the year ending 30th September, 1898. Presented to the Legislature 8th February, 1899. *Printed.*
- No. 16.. Report upon the Institution for the Education of the Deaf and Dumb, Belleville, for the year ending 30th September, 1898. Presented to the Legislature 8th February, 1899. *Printed.*
- No. 17.. Report of the Work under the Children's Protection Act for the year 1898. Presented to the Legislature 23rd February, 1899. *Printed.*

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- No. 18.. Report of the Ontario Agricultural College and Experimental Farm for the year 1898. Presented to the Legislature 14th March, 1899. *Printed.*
- No. 19.. Report of the Agricultural and Experimental Union of Ontario for the year 1898. Presented to the Legislature 22nd March, 1899. *Printed.*

- No. 20.. Report of the Fruit Growers' Association of Ontario for the year 1898. Presented to the Legislature 22nd March, 1899. *Printed.*
- No. 21.. Report of the Fruit Experiment Stations of Ontario for the year 1898. Presented to the Legislature 22nd March, 1899. *Printed.*
- No. 22.. Report of the Superintendent of Spraying for the year 1898. Presented to the Legislature 17th March, 1899. *Printed.*
- No. 23.. Report of the Entomological Society of Ontario for the year 1898. Presented to the Legislature 22nd March, 1899. *Printed.*
- No. 24.. Report of the Bee Keepers' Association for the Province for the year 1898. Presented to the Legislature 22nd March, 1899. *Printed.*
- No. 25.. Report of the Poultry and Pet Stock Association of the Province for the year 1898. Presented to the Legislature 22nd March, 1899. *Printed.*

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- No. 26.. Report of the Provincial Instructor in Road Making in Ontario for the year 1898. Presented to the Legislature 22nd March, 1899. *Printed.*
- No. 27.. Report of the Butter and Cheese Associations of the Province for the year 1898. Presented to the Legislature 22nd March, 1899. *Printed.*
- No. 28.. Report of the Live Stock Associations of the Province for the year 1898. Presented to the Legislature 22nd March, 1899. *Printed.*
- No. 29.. Report of the Superintendent of Farmers' Institutes of the Province for the year 1898. Presented to the Legislature 22nd March, 1899. *Printed.*

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- No. 30.. Report of the Inspectors of Factories for the Province for the year 1898. Presented to the Legislature 22nd March, 1899. *Printed.*
- No. 31.. Report of the Inspector of Legal Offices for the year 1898. Presented to the Legislature 10th March, 1899. *Printed.*
- No. 32.. Report upon the Registration of Births, Marriages and Deaths in the Province for the year 1897. Presented to the Legislature 27th February, 1899. *Printed.*
- No. 33.. Report of the Ontario Game and Fish Commission. Presented to the Legislature 17th March, 1899. *Printed.*
- No. 34.. Report of the Commissioners for the Queen Victoria Niagara Falls Park for the year 1898. Presented to the Legislature 24th February, 1899. *Printed.*

- No. 35.. Report of the Royal Commission on Forest Protection and Perpetuation in Ontario, 1898. Presented to the Legislature 25th March, 1899. *Printed.*
- No. 36.. Analysis of Reports of Agricultural and Horticultural Societies of Ontario for the year 1897. Presented to the Legislature 22nd March, 1899. *Printed.*

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- No. 37.. Report of the Bureau of Industries for the year 1898. Presented to the Legislature 22nd March, 1898. *Printed.*
- No. 38.. Report of the Bureau of Mines for the year 1898. Presented to the Legislature 29th March, 1899. *Printed.*
- No. 39.. Report of the Board of Health for the year 1898. Presented to the Legislature 28th February, 1899. *Printed.*

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- No. 40.. Report of the Financial Statements made by Loan Corporations for the year 1898. Presented to the Legislature 29th March, 1899. *Printed.*
- No. 41.. Report of the Provincial Municipal Auditor for the year 1898. Presented to the Legislature 20th February, 1899. *Printed.*

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- No. 42.. Report of Mr. Inspector Hodgson regarding Upper Canada College. Presented to the Legislature 10th August, 1898. *Not printed.*
- No. 43.. Copy of Order in Council approving of certain appointments on the Staff of Upper Canada College. Presented to the Legislature 10th August, 1898. *Not printed.*
- No. 44.. Copy of Minutes of the Department of Education approving of certain Regulations. Presented to the Legislature 10th August, 1898. *Not printed.*
- No. 45.. Copy of an Order in Council approving of Regulations governing the disposal of Water Powers. Presented to the Legislature, 19th August 1898. *Not printed.*
- No. 46.. Copy of an Order in Council respecting the terms and conditions governing the lease of Corundum Lands. Presented to the Legislature 19th August, 1898. *Not printed.*
- No. 47.. Copy of an Order in Council approving of Regulations for Mining Divisions. Presented to the Legislature, 24th August, 1898. *Not printed.*

- No. 48.. Copy of an Order in Council approving of certain amendments to the Regulations for Mining Divisions. Presented to the Legislature, 24th August, 1898. *Not printed.*
- No. 49.. Copy of an Order in Council establishing the Michipicoten Mining Division. Presented to the Legislature, 24th August, 1898. *Not printed.*
- No. 50.. Reports relating to Toronto University. Presented to the Legislature, 2nd March, 1899. *Printed.*
- No. 51.. Report of the Librarian on the state of the Legislative Library. Presented to the Legislature, 2nd February, 1899. *Not printed.*
- No. 52.. Report of the Inspector of the House of Refuge, County of Waterloo. Presented to the Legislature, 8th February, 1899. *Not printed.*
- No. 53.. Copy of Order in Council respecting the payment of surplus Surrogate Court Fees to Judge Jamieson. Presented to the Legislature, 8th February, 1899. *Not printed.*
- No. 54.. Copies of Orders in Council commuting Surrogate Court Fees of Judges Huges, Barron, Elliott, Doyle, Monck and Mosgrove. Presented to the Legislature, 8th February, 1899. *Not printed.*
- No. 55.. Statement as to the disposal of the Sessional and Revised Statutes of Ontario. Presented to the Legislature, 8th February, 1899. *Not printed.*
- No. 56.. Return to an Address to His Honour the Lieutenant-Governor of the tenth day of August, 1898, praying that he will cause to be laid before this House a Return of copies of all Orders in Council, correspondence and other documents relating to the deciding upon, and purchase of a site in the City of London for the proposed Normal School. Presented to the Legislature, 14th February, 1899. *Mr. Hodgens. Not printed.*
- No. 57.. Return to an Order of the House of the seventeenth day of August, 1898, for a Return of copies of all correspondence and papers relating to, or connected with, the confinement of Hiram Augustus McCrea in the Asylums at Kingston and Brockville, and his release therefrom. Presented to the Legislature, 17th February, 1899. *Mr. Beatty (Leeds.) Not printed.*
- No. 58.. Copy of an Agreement between the Inspector of Prisons and Public Charities and the Independent Cordage Company of Ontario (Limited), respecting the manufacture of Rope at the Central Prison, Toronto. Presented to the Legislature, 20th February, 1899. *Not printed.*
- No. 59.. Report of the Master of Titles for the year 1898. Presented to the Legislature, 23rd March, 1899. *Not printed.*

- No. 60.. Report of the Principal of Upper Canada College for the year ending 30th June, 1898, and statements shewing receipts and disbursements for the same period. Presented to the Legislature, 23rd February, 1899. *Printed.*
- No. 61.. Copy of Contract, between Her Majesty the Queen and the Riordan Paper Company, for the supply of printing paper required by the Government of the Province of Ontario. Presented to the Legislature, 23rd February, 1899. *Not printed.*
- No. 62.. Return to an Order of the House of the seventeenth day of August, 1898, for a Return showing the number of saw-logs cut during the winter of 1897-1898 on the limits of the Georgian Bay and on Lakes Huron and Superior, which were driven to either of said lakes; the quantity cut in Provincial mills, and the quantity of exported uncut. Presented to the Legislature, 23rd February, 1899. *Mr. Beatty (Leeds.) Not printed.*
- No. 63.. Return to an Order of the House of the twenty fourth day of August, 1898, for a Return of copies of all correspondence between any member of the Government or representative thereof, and any party or parties, respecting the purchase of any timber berth that may have been sold since March 1st, 1898. Presented to the Legislature, 28th February, 1899. *Mr. Wardell. Not printed.*
- No. 64.. Return to an Order of the House of the twenty-second day of February, 1899, for a Return of copies of all correspondence between any member of the Government and the License Inspector for the County of Lincoln, and any other person or persons, referring to or respecting the alleged connection of the Inspector with the business of cigar manufacture. Presented to the Legislature, 28th February, 1899. *Mr. Jessop. Not printed.*
- No. 65.. Return to an Order of the House of the seventeenth day of February, 1899, for a Return of copies of all papers and documents in relation to the proposed contract for public printing, including specifications, tenders and a comparative statement shewing the different tenders for each item of the specification and the estimate of quantities required. Also, the total estimated amount of each tender. Also, of copies of all correspondence, if any, between the Queen's Printer and the heads of Departments as to preparation of specifications for contract for public printing. Also, of all reports, if any, of expert printers as to details of said specifications and also of all other correspondence appertaining thereto, or to the letting of the contract or conditions required from the contractor. Presented to the Legislature, 3rd March, 1899. *Mr. Matheson. Not printed.*
- No. 66.. Return to an Order of the House of the twenty-sixth day of February, 1897, for a Return giving the names of all High School Teachers who have received Specialists' Certificates since 1885 as the result of examinations. The names of such teachers who received Specialists' Certificates on any other ground, stating the year in

which such certificate was granted, on what grounds, and the University standing of the recipient. Names of all applicants for such certificates who have been refused them, and on what grounds such refusal was based. Presented to the Legislature, 9th March, 1899. Mr. *Matheson*. *Printed*.

- No. 67.. Return to an Order of the House of the twenty-seventh day of February 1899, for a Return of copies of all correspondence between the Government or any member thereof, and the Corporation of the Town of Lindsay, with reference to the appointment of a Police Magistrate and the salary to be paid him. Also, copy of Order in Council appointing Police Magistrate at Lindsay. Presented to the Legislature, 9th March, 1899. Mr. *Fox*. *Not printed*.
- No. 68.. Return to an Order of the House of the eighth day of March, 1899, for a Return of a copy of Miller's Report as to discovery of gold in the Township of Marmora, the same to be brought down during the present Session. Presented to the Legislature, 10th March, 1899. Mr. *McLaughlin*. *Not printed*.
- No. 69.. Return to an Order of the House of the fifteenth day of December, 1897, for a Return of copies of all correspondence between the Minister of Education, or any official in the Department and Mr. Stewart of Glencoe, or any other person, in reference to the case of C. C. Grant of St. Thomas, who was charged with having obtained copies of the examination papers before the Matriculation Examination in 1896. Presented to the Legislature, 13th March, 1899. Mr. *Brower*. *Not printed*.
- No. 70.. Return to an Order of the House of the sixth day of March, 1899, for a Return giving the number of circular letters, sent from the office of the Chief Game Warden, soliciting answers to a series of questions as to shooting deer while in the water. The names, addresses, occupations or professions of those to whom such circulars were addressed. Also, shewing the amount of money received from the sale of permits to kill deer during the season of 1898. Also, shewing balance left after paying salaries of Game Wardens, all expenses of offices and all moneys paid to or on behalf of Game and Fish Commissioners during the year 1898, in so far as the information is not contained in the Report of the Department. Presented to the Legislature, 21st March, 1899. Mr. *Pyne*. *Not printed*.
- No. 71.. Return to an Order of the House of the sixth day of March, 1899, for a Return, giving the names, addresses, occupations or professions of all persons to whom permits were granted, during the year 1898 to collect birds, birds nests and eggs under provisions of the Act of 1889 for the protection of insectivorous and other birds. Also, of renewals and new permits which have been granted during the current year. Also, shewing number of convictions for violations of the Act during the year 1898, and specifying localities. Presented to the Legislature, 21st March, 1899. Mr. *Pyne*. *Not printed*.

- No. 72.. Return to an Order of the House of the sixth day of March, 1899, for a Return, shewing all fees paid to Alfred Stunden, a constable of the Town of Bracebridge, in connection with the enforcement of the Game Laws of the Province. Presented to the Legislature, 21st March, 1899. Mr. Reid (*Addington*.) *Not printed.*
- No. 73.. Report of the Clerk of Forestry for the year 1898. Presented to the Legislature, 25th March, 1899. *Printed.*
- No. 74.. Copy of Agreement between Her Majesty the Queen and the Sturgeon Falls Pulp Company, Limited. Presented to the Legislature, 25th March, 1899. *Printed.*
- No. 75.. Return shewing the Fees and Emoluments of the Registrars of Deeds of the Province for the year 1898, with which are contrasted receipts of the same nature in the years 1896 and 1897. Presented to the Legislature, 27th March, 1899. *Not printed.*
- No. 76.. Return to an Order of the House of the eighth day of March, 1899, for a Return, shewing the number of Police Magistrates in Ontario, their names, residences, dates of appointment and territory over which they have jurisdiction, and shewing as well their respective salaries. Presented to the Legislature, 27th March, 1899. Mr. Fox. *Not printed.*
- No. 77.. Return to an Order of the House of the ninth day of March, 1899, for a Return shewing the number of cases entered in the County Court of the County of Ontario for the past five years; the amount of money collected through the Sheriff during the same period and shewing as well the number of cases entered in the Division Court of the same County during the past five years, and the amount of money collected in the Court during the same period. Also, shewing the number of cases that went to trial in each Court respectively. Together with a statement of the number of cases heard or tried in the County Judges Criminal Court, the number of days in which the County Judge was engaged in revising voter's lists, in attending board of audit criminal justice accounts, the selection of jurors, and in the performance of duties under the Overholding Tenants Act and in the performance of other duties imposed upon him by law during the said period. Presented to the Legislature, 27th March, 1899. Mr. Hoyle and Attorney-General. *Not printed.*
- No. 78.. Correspondence and general information in respect of the application for grants of public money in aid of the construction of certain portions of the Central Counties Railway, the Central Ontario Railway, the Haliburton, Whitney and Mattawa Railway, the Irondale, Bancroft and Ottawa Railway, the James' Bay Railway, the Ontario, Belmont and Northern Railway, the Ontario and Rainy River Railway, and the Ontario, Hudson's Bay and Western Railway. Presented to the Legislature, 29th March, 1899. *Printed.*
- No. 79.. Report of the Secretary and Registrar of the Province for the year 1898. Presented to the Legislature, 29th March, 1899. *Printed.*

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- No. 80.. Report on the operations of the Ontario Gold Concessions, Limited.
Presented to the Legislature, 29th March, 1899. *Printed.*
- No. 81.. Report of the Attorney-General upon the indebtedness of the Town-
ships of Dunwich and Aldborough in respect of certain drainage
works. Presented to the Legislature, 31st March, 1899. *Not
printed.*
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ELEVENTH ANNUAL REPORTS

OF THE

INSPECTORS OF FACTORIES

FOR THE

PROVINCE OF ONTARIO,

1898.

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE.)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO :

WARWICK BROS & RUTTER, PRINTERS, 68 AND 70 FRONT STREET WEST.
1899.

ELEVENTH ANNUAL REPORTS

OF THE

INSPECTORS OF FACTORIES.

WESTERN DISTRICT.

To the Honorable the Minister of Agriculture :

SIR,—During the year just ended it has been my experience to find a very marked increase in the activity in manufacturing in nearly all branches of business. The depression which had continued so long, crippling many and engulfing others, had at last given way to a better condition of things, giving employment to a greatly increased number of workers and extra hours being worked. I felt that I might reasonably expect some violations of the Factories Act, as regards employment of children under 14 years of age, and the employing of females longer than is permitted by law, but I found very few children employed even during the summer school holidays—which cover a period of about nine weeks. As to working females beyond the legal hours of sixty a week, I have had no complaints on that score.

OVERTIME.

The applications for legal overtime permits of twelve and one half hours a week, over and above the sixty hours allowed by law, for females, have been more numerous than heretofore: and in a few factories where the legal overtime was not sufficient to fill orders in time for delivery, two sets of workers were engaged to work night and day—20 hours out of 24. But in certain localities this could not be done, on account of the difficulty of getting sufficient skilled labor. It was refreshing to me to note the increased activity in manufacturing, to see all the machinery in operation, where before only a part of it was. The workers themselves seemed to be infected with the feeling of the times, to be more alert and taking a greater interest in their work. This increased activity in the state of business and the increased number of operatives could not help but have the effect of slightly increasing the number of accidents, but not to the extent it formerly would, owing to the increased protection of the dangerous parts of machinery, and dangerous places.

VENTILATION.

Ventilation is a never-ending field for the Factory Inspector to give attention to, especially in dust-generating occupations and in work-rooms where hand labour is being done, and which are often rather crowded. For some of these work-rooms there is no

artificial means of ventilating, and it is difficult to get out the foul air without letting in from out of doors the fresh air. In winter, with the temperature at nearly zero, the workers near the windows object to the cold air coming in and dropping down on them. They object to cold draughts, both on account of the discomfort and health. In fact there are many of this class of work-rooms that are barely comfortable, and the workers in cold weather have to keep on their wraps while at work. We have generally been successful in getting the places more comfortable, but I am afraid at the expense of fresh pure air.

Laundries are now well ventilated by power exhaust fans to remove the excessive heat, moisture and gases (carbon monoxide and carbonic acid gas). These two gases are given off in considerable quantities from the ironing machines, in which the moving hollow rollers are heated by gas jets, burning with a blue flame inside the rollers. The workers have this partially within their own control, by regulating the proportion of gas and air. But they cannot see the deleterious gas, and fail to give as much attention as they should to the flame, knowing they have the fan as an antidote.

Some foundries are yet the cause of complaints as regards dust in grinding and milling rooms. Polishing rooms in bicycle factories, for the most part are well equipped for the removal of the dust, but the proper working of the fans and machines to which they are attached are not always looked after by the party whose duty it is to do so and in consequence the fan is not giving efficient service.

The new style of rattler, or mill with exhaust pipe attached to the hollow axle, is a great improvement over the old style yet generally in use, which is merely a revolving screen,—even when enclosed in a box with exhaust pipes leading from the box. But a great deal of the efficiency of a fan depends on its speed, and this, again, in a measure depends on keeping the driving belt tight, and free from lumps of accumulating dust, so that it will not slip.

FANS.

In writing of fans, I may here remark that I have heard of the danger of fires originating in their exhaust pipes, from the fuzz from the cotton buffing wheels being drawn into the pipes and sticking there, catching on some small unevenness and accumulating, and becoming ignited by a spark from an emery wheel discharging into the same main. I have not known of fires from this cause, in my experience. I think there would need be a considerable collection of fuzz before it would be sufficient to ignite wood, if proper piping were used. I have asked many of the men using polishing and buffing wheels about it, and the uniform reply I received was that they never knew or heard of a case. I would advise all proprietors of factories who contemplate putting in a fan, for any purpose, not to assume that they know all about it, but to communicate with some maker of fans for advice as to size, speed, style, piping, etc. Some factory owners in my district have undertaken themselves to do this, without having proper knowledge on the subject, and when the fan was given a trial, found to their disappointment that it would not do the work required and further expense would need be incurred. Some occupiers of factories will not even accept the suggestions of the inspector, who has a good opportunity of seeing the latest appliances of every kind used in manufacturing and judging of their work. Some years ago I requested that a fan should be placed in a foundry to remove a portion of the large quantity of dust given off by the mills or rattlers. I advised a system that I had seen in use in another foundry, that I found to work very satisfactorily. The idea was taken but was not carried out in all its details, and the result was a partial failure as to the dust and clumsy arrangement of box, with boards to be lifted out when emptying or filling the mill, and being replaced when this was done. Shortly after the mills were attached to the fan, a worker was killed by his clothing being caught on a bolt head in the rattler, carried over to his death, owing to the clumsy construction of the box. In other foundries where the system I advised was in use, there has been no accident reported as having happened from these machines.

COMPLAINTS.

I have had but few complaints this year. I investigated them all. Some I found were quite justified, and which the Factories Act could remedy; and again others without foundation, and had the appearance of having been made with a view of giving annoyance to the particular employer, arising from spite or from some personal grievance. These frivolous complaints sometimes put me to some inconvenience to investigate, and no good can result from such complaints. Parties making such should reflect that if there is no cause for complaint the inspector can take no action against the employer. The inspector has his trouble for nothing and feels discouraged in his efforts to benefit the workers. I am always glad of any assistance that I may receive as to violations of the Act, but I prefer that my information should be correct. Complaints coming through the labor councils, can as a rule be relied upon, but even they too have sometimes been misled, till of late they have adopted the policy of first ascertaining the truth before forwarding the complaints to the inspectors. But outside of cities and a few towns there are no labor organizations, and therefore as far as complaints are concerned, each worker is free to do as he pleases.

There was some dissatisfaction over the delay in the putting in of a fan in the bicycle works at Brantford. It came about in this way: One end of the building occupied by the bicycle works was occupied by another factory, which was gutted by fire, so as to render a removal necessary, and the owners of the bicycle works intended occupying the part vacated, and to rearrange the machinery, moving the polishing wheels to the part just gained, and therefore did not wish to place fan and pipes till after the removal, when they would be permanent, which was reasonable, but the other people did not vacate as soon as expected, and hence the delay. I asked the bicycle manager to let his polishers know the cause of the delay, so as to show the polishers I was looking after their interests. But I doubt if they know the cause of delay.

CLEANLINESS.

I find occupiers of factories are paying more attention to cleanliness than when the Act was first enforced, and I think they find that it pays in its effect on the workers. In one instance a foundry and fitting shop were being lime-washed—I suppose for the first time since their erection some 40 or 50 years ago. It made a very marked improvement in the appearance of the rooms, they being more cheerful and smelled sweeter. It must have been dirty work putting on the limewash, there was so much of the dust of ages clinging everywhere.

My relations with employers and employees have been pleasant. The former for the most part are quite willing to carry out the Inspector's wishes, and the latter, as a rule, do not want from employers anything that is unreasonable. The removal of unhealthy impurities in the air of factories is a matter that concerns their health, which is their capital, and they have a right to demand the most favorable conditions practicable to work under, and in many trades the best is bad enough.

BAKE SHOPS.

I have not made a general inspection of bake-shops in my district, confining my visits for the most part to those shops against which I have had complaints. The complaints are chiefly of excessive hours being worked, and beginning to work too early on Sunday night. As to uncleanness of bake-shops or of bakers, I have had no complaints. The employing baker's own interests have now more than ever reason for cleanliness, for the reputation of filthiness in a bake-shop would ruin the baker's business.

THE SHOPS AND PLACES OTHER THAN FACTORIES ACT.

The shops and places coming under this Act I have not generally visited, going for the most part to those which have been complained about, which were not many. Miss Carlyle received most of the complaints from places employing females and she will write more fully in this respect.

FIRES.

There have been the usual number of fires in factories this year, but fortunately they usually take place after working hours. One in the Dominion Box Factory on Adelaide St., West, Toronto, was an exception to this, the alarm being given just at quitting time. Some of the girls were going down the stairs and others were ready to go. The fire started in the basement near the elevator and spread very fast. The building was destroyed but all of the employees got out safely. There were two good iron fire escapes on the building, and one man told me that his father had to come down this way, and without the fire escape he could not have escaped death.

ACCIDENTS.

I have had reported to me this year 110 accidents, against 91 for the previous year; but it must be borne in mind that owing to the Legislature being called to meet earlier than usual the Inspectors of Factories were instructed to prepare their reports up to November 30th—for eleven months, instead of twelve as was customary. This cutting off of one month in last year's Report is to be added to this year's Report, making it extend over a period of thirteen months.

I find, from my accident book, that in December of last year I had reported to me eight accidents, which, for comparison, should come off this year's list and be added to that of last year, making the figures stand 102 for this year against 99 of last year, thus showing but little difference in the list of accidents for the last two years.

I have a strong impression that with some employers there is a disposition to ignore the law as to reporting of accidents, and consequently quite a number happen that are not reported. I am now taking means to have the law better observed, and after a fair warning employers will have no one to blame but themselves if they are brought up before a Justice of the Peace and fined for not reporting accidents. I think as a result of this action I may, in the future, expect an increase in the number of accidents reported, (though not of those actually happening). I should and would be sorry for an increase in the number of those actually happening, especially so if they could have been prevented by protecting dangerous places and parts of machinery; but I shall rejoice if the increase is wholly due to the better observance of the law in respect to reporting accidents. I consider it a vital clause of the law, for there are some dangers about a factory which the Inspector, whatever his experience, only knows of by some accident happening, and if it is not reported how is the Inspector to learn of the danger, and suggest some protection to prevent similar accidents in the future?

I do not need to visit the scene of every accident, for I can most generally tell by the report received if it will be necessary to see the part or place where it occurred. But there are some reports received that do not convey an idea of the cause of accident, and I often find it necessary to visit the factory for further enlightenment. I must thank the newspapers for a considerable share of the accident reports. Having first seen them in print I have written the employers for full information. The press could do me further service if they would give the name of the employers, for often their notices just mention the circumstances without any names, especially in regard to accidents not of a very serious nature. I have always, since my appointment, taken a great interest in the subject of accidents, their causes and prevention, and at one time had a hope that the time would come when none would occur except those which are not prevented by law; but later experience has taught me that my hopes were vain, owing mostly to changes of machinery and plant in factories, removing guards, etc. There are a great many employers in my district who have not reported one accident in 12½ years I have been inspecting. Whether any occurred with them in that time I do not know, but I think that some of them escaped. In the multiplicity of machines for various purposes there are many dangerous parts where absolute protection is impossible, still I am firmly convinced that the reporting of accidents has in the past

been the means of reducing the number and will in future continue to do so, with the exception possibly of those occurring from especially hazardous occupations. It will be my endeavour to have the law as to reporting accidents better observed.

I may here say that those who best observe the law in this and all other respects are the large employers of labour, and that the smaller ones pay very little attention to the reporting of accidents clause. I do not wish to convey the impression that they defy or ignore the law, for they observe it in other respects, such as the employment of children, the hours of work for females, etc. These are continuous obligations and always borne in mind, but the reporting of accidents is different, only having to report an accident when one happens, which with some employers are at long intervals apart, and in the meantime they forget the requirements of the law in this respect. It is just as necessary that all accidents should be reported from the small employers of labor as from the larger ones, and many of the most serious happen in the smaller factories.

Of the 110 accidents reported to me since the last report was issued 31 of them happened in the wood-working industries; of these 18 happened by saws—mostly rip-saws; 1 by a boring machine; 3 by jointers; 5 by buzz planers; 1 occurred by a person falling across a circular saw; 1 by falling on a buzz planer. A man lost two fingers while removing sawdust from beneath the saw table while the saw was in motion. This was taking a most unnecessary risk, and he paid the penalty for not taking the precaution of stopping the saw previous to the removal of sawdust. These last three accidents noted are of a kind that inspection cannot prevent. Three accidents happened through sticks being thrown forward from rip-saws, two of which proved fatal. There are rip-saw machines now made so constructed as to render it impossible to throw forward sticks, but the ordinary rip-saws would be safer to use if there was a wedge behind the saw to keep open the cut so as not to bind the saw and lift the stick. There are also other devices for the purpose, but there are some rip-saws working on small work that these guards cannot be used on. The machinery builders are constantly making improvements towards the safety of operating machines, but it is only in new factories just erected where the newest machines are to be found, and not always in these, for some of them are furnished with old and second-hand machines. It is to be desired that machinery more modern and well protected, as to dangerous parts, will be introduced into some of the wood-working factories; but the inspector is powerless in this respect and has to do with only such machines as he finds therein. I do often make suggestions as to improvements which will in my opinion be less dangerous, and frequently my suggestions will be adopted, but where it involves an expenditure of \$300 or \$400 it is too serious to be entertained by the owners, in view of the very great depression which prevailed for some years back. But now that a change for the better has come it is to be hoped that a large proportion of the antiquated machinery in some factories will give place to that of later and improved construction. No accidents have been reported as occurring from gearing or belting in the wood-working industries. One accident happened through a sand (not a driving) belt. A distressing accident occurred in the basket factory in Oakville, by which an employee lost a hand, cut off at the wrist. He was operating a hoop machine, cutting veneers into the proper sizes by a large knife driven by steam power, and in some way got his wrist under the knife, cutting it off.

In the metal industries there were reported this year 26 accidents, grouped as follows:—Struck by flying pieces of iron, 2, one in the nose and one in the eye; injured by die press, 2; by cutting press, 3; by stamping press, 3; varnishing press, 1; by weights falling, 6; shear wheel and chain, 1; crane crank, 1; changing gears in motion, 1; clothing caught by set screw of face plate of lathe, 1; steam and drop-hammers, 3; burnt by molten metal, 1.

In laundries there has been only one accident reported, viz., injured in a mangle.

There was but one accident reported from a twine factory, viz., a girl was spooling yarn and the bank caught in the shaft entangling her arm. In a tannery in a screw conveyer for moving the ground tan bark, one occurred.

Six persons have been reported as injured in small gears of looms and spinning jacks.

As to the causes of accidents reported I would note that one boy fell down a hoist-way while fooling after working hours ; one worker burned by explosion of gas in a refinery ; one hurt by shuttle flying from the loom—these accidents are rare. One by a belt breaking, one person was injured by being jammed in a loom ; cleaning in motion, three : one man was hurt by a cast iron radiator, which he was testing by water pressure, bursting, and flying pieces struck him causing injuries sufficient to incapacitate him from work for over six days. One person was hurt in a rotary fulling mill starting up itself. Four persons were killed and four severely injured by a boiler explosion, one in a pinch bolt, one jammed by an emery wheel, one in an iron planer, one by a sand-papery machine, two persons by falling, one of them fell on an oiler, the spout of which penetrated his arm about three inches ; a hoop machine injured one man. The following was reported as the result or extent of the accidents. Fatal, eleven ; fingers off or injured, seventy-five ; one had his chest injured ; eleven arms were wounded or lost ; two noses hurt ; two heads ; toe crushed, one ; back injured, one ; eye lost, one ; shoulder injured, one ; five persons had a foot injured ; legs, three ; six persons suffered from injuries of head and body ; four persons were scalded ; one was injured on the ankle.

Of the total accidents ten happened to females, the most serious of which was to a girl having a finger amputated, injured in gears, cleaning in motion, and one had her arm broken from a hank of yarn catching on a shaft. The other accidents to females were not of a very serious nature.

FATAL ACCIDENTS.

The fatal accidents were as follows : April 15, Jos. Bullard struck by a stick thrown from a saw. Dec. 21, 1898. Thos. Peats, Wallaceburg, a boy. His duty was to haul staves out of the mill, using a horse and lorry ; he drove into the mill and had loaded the lorry with staves from the stove cutter, and was preparing to drive out into the drying yard standing on the load of staves. It is supposed that owing to the noise of the machinery the horse did not hear the command to move and the boy went to strike the horse with the driving lines and throwing them over his shoulder for the purpose they caught on a shaft revolving 360 times a minute, about 8 feet above the floor ; but he, standing on a load of staves, must have been very near to it. He was entangled in the lines and was instantly killed and literally torn to pieces. I had been several times through this factory and had noticed the shaft being low but thought there was no danger from it, as I did not then know of anyone being placed in danger from it by being elevated from the floor by standing on staves, on a wagon, or on a lorry. I visited the mill again soon after the accident, and suggested that the shaft be covered which the foreman agreed to have done at once. Here is an example of a danger in a factory that I would not have thought to be so had it not been for the sad accident that happened, and it shows the necessity of reporting accidents to draw the inspector's attention to the dangerous place. Luckily I saw the account of this in a newspaper or it is possible I would not have known of it, for it was not reported till after I had visited the mill and requested it to be done.

On Feb. 22nd, George Birmingham, Palmerston, in returning to his work after the dinner hour, instead of going direct to his own department, turned to cross the elevator, as others had just done before him. He was running at the time and, having soft snowballs on his heels, slipped in trying to turn quickly, and his leg struck on a bar that was used as a protection to the elevator. This seems to have thrown him on top of the left door which he intended to cross, and from this door he fell to the bottom of the shaft, about 13 feet, injuring his shoulder and spine. He was sent to the London hospital where he died on the 28th, six days after receiving the injury. This elevator is situated in the corner of a large hall or entry, quite out of the road of persons entering or leaving the factory, and was protected by a rail or bar.

May 18, Anthony Durval, Penetanguishene, met his death by being struck by a board thrown from a saw.

July 12, Henry Schanihorn, Drayton, working in the press-house of a tile works, lost his life suddenly. He was lacing a long belt. The engine being stopped he got on a platform with his legs through the belt. When he had finished the lacing, without freeing himself from the belt, he signalled the engineer to start the engine, which was done so promptly that he was still on the belt when he got caught and wound around the shaft, killing him instantly. Anyone observing ordinary caution would have got himself free from the belt before giving the signal to start.

Also on August 11, at the same works, another man, Mr. Kemble, met with death by the bursting of a wood pulley, a piece of which struck him as he was standing in a line with the pulley, not very far off but below it. The pulley was revolving at a speed of about 500 revolutions a minute, was out of doors, exposed to a certain extent to the weather. It is supposed getting wet in some storms, though covered, the glue which held together the sections of which it is composed had lost most of its adhesive power and the high peripheral velocity of the pulley's rim had generated a force greater than the glue's strength could resist, causing the pulley to fly apart. This is the second death reported to me caused by the bursting of the splitwood pulleys. There are a great many of these in use of various sizes in the Western District, but mostly indoors, and not exposed to dampness. They are liked because they are light and convenient to place on or off a shaft. This accident happened about ten o'clock in the morning and the unfortunate man lived till about four o'clock the next morning. Death resulted from shock and internal hemorrhage. The bones of the right shoulder were broken and two or three ribs, the ends of which had penetrated the lung. He was conscious immediately after receiving the injury and wanted to continue his duties but was persuaded to go home where he soon showed signs of collapse from which he did not rally.

On August 3rd, at the factory of the Canadian Feather and Wire Mattress Co., Toronto, Bertie Burke, a boy aged 13 years and 6 months, was killed by an elevator. The explanation of the accident given to me was that Burke and another boy were using the elevator to take grass up stairs from the cellar, and that the boys were larking. Burke started the elevator up leaving his companion in the cellar, so he would have to walk up. On the way up it is said Burke was on his knees on the floor of the platform spitting down at the other boy through the space between the platform and the well wall; when he reached the second story the doors protecting the well hole were closed. The doors have a cleat on them at near the top and bottom, made of inch board and running parallel with the floor. It is thought his ear came in contact with the lower cleat of the door and held his head fast between it and the ascending platform and crushed it as well as tearing the ear nearly off. The platform continued to ascend; the doors closing the well hole were forced open by the boy's head; he was rolled off the platform on to the second story floor and from there rolled into the shaft and fell to the bottom. It is thought he received fatal injury before he rolled into the shaft, as there was blood on the elevator door and on the wall of the well-hole below it. A sub-contractor undertook the work of making the mattresses, finding his own help, and, with the employer, was responsible for having illegally employed a boy under 14 years of age. In reply to a letter written by me to the Company's manager, enquiring about the boy's age, I received the following letter:

"In reply to yours of the 12th inst., *re* the boy Burke, who met with a fatal accident in our factory on the 3rd instant, we would say, the evidence given at the inquest regarding the age of the boy was the first knowledge we had that he was under 14 years of age, as he gave his age as 14 and he was 5 feet 2 inches high and intelligent enough for a boy of 16 years of age. We believe the boy's father also thought he was 14 years of age till the record of his birth revealed to them the fact that he was only 13 years, 5 months and 23 days. We very much regret that such an accident occurred, but we assure you that to the best of our knowledge we have always endeavored to comply with the requirements of the law." Under the circumstances I was advised not to prosecute.

On July 15, a boiler exploded at Sycamore Siding, in the County of Kent, causing the death of four men and seriously injuring four others. I visited the scene of the

catastrophe shortly after it occurred, driving down ten or fifteen miles from Tilbury. It was an "abomination of desolation" The mill was in ruins, fragments of machinery and boiler lying around, and no person in sight to give me any information as to the occurrence. I called on Dr. Bray, of Chatham, the coroner who held the inquest, and all the information I have relative to the explosion I obtained from him and from the Chatham "Planet" newspaper. I learned that the boiler was a second hand one and very old—said to have been in use for 25 years. It was made before the days of cheap steel. The machinery was started at the usual hour, 7 o'clock. After having run about an hour the engine was stopped to repair some belting. There were three men on top of the boiler packing the manhole when the explosion occurred, killing or injuring nearly all in the mill. I should mention that the mill was manufacturing staves. Jas. Payne, the engineer, was blown fifty feet away and was dead, and mangled almost beyond recognition. John Rambean was struck by some iron missile, entering the forehead and coming out of the back of his head. Chas. Betts, manager, was in the engine room. He was thrown down and badly bruised and only lived a short time. Joseph Lee was not in the mill at the time but was struck with a piece of the flying debris. He died in the afternoon, suffering greatly. I copy some remarks of the "Planet's" correspondent "That the boiler was an old trap which had been in use for upwards of 25 years, and an examination showed how really frail the outer shell was. It was an extra large affair, being about six feet in diameter and built in solid brick masonry, and from information obtained it was learned that the steam pressure at the time of explosion was reported to have been in the neighborhood of 100 lbs. (to the square inch), and that the dampers were open and the ball on the safety valve (lever) was out to the last notch. If the safety valve was working properly there would have been a warning of the high pressure and the engineer could have taken the necessary precautions. But it appears no one was paying any attention to the steam gauge, and it is probable the pressure, which at that time was unknown to any one, had risen considerably and registered over 100 pounds, which, from the opinion of a number of practical men who were present, was entirely too high for the boiler, and in all probability the cause of the accident was a defective boiler and too high pressure." This is probably the cause of all boiler explosions; but one has to look further and ascertain why the pressure was too high. As an example of the ignorance of some men who have charge of boilers I may give one of my own experiences.

Some years ago I visited a small factory which I found on entering did not come under the Act by reason of not employing more than five persons. In talking with the proprietor he asked my opinion as to whether or not it would be safe to get up a pressure of 60 lbs. of steam in his boiler, near which we were standing. I saw it was old and rusty, several patches on it and steam leaking out from several places, and one which I thought fit only to be used as old iron. I replied that I was not competent to give an opinion as to whether it would or not stand a pressure of 60 lbs., but advised him to get a competent boiler maker from Hamilton to examine the boiler and report on its condition. He said he knew it would stand 40 lbs. for he had it up to that last week. I smiled and said it reminded me of an article I had lately read, "How to tell mushrooms from toad-stools." Had he seen it? He replied in the negative. I then said that if in doubt to eat them and if they were toad-stools they would kill him; and then I drew the lesson how to tell what pressure of steam a boiler would carry, and which was to keep on trying with increased pressure and some day the desired information would be arrived at by the boiler exploding. If he survived the explosion he would have the knowledge he was striving for.

It is a serious and responsible position to have the charge of steam boilers, for generally there are several persons in a place where there is a boiler—not to mention the risk to property. In cities and towns this charge for the most part is given to competent men, but in the rural districts a very different condition of things exists. For generally the boilers in use are second hand, old and out of date, and in many cases the fireman is very ignorant as to how to take care of a boiler. The fuel in lumber and woodworking factories is mostly mill rubbish which burns fiercely and generates steam fast, for the machinery uses it fast. So long as there is plenty of water in the boiler and steam being

given to the engine all goes well, but sometimes a moment's negligence will injure the boiler so as to weaken it, or one of several conditions may arise owing to the ignorance of the man in charge as to cause an explosion sooner or later. There is in this Province no law requiring boilers to be inspected, nor to require the engineer or fireman to have a certificate of competency, other than for marine boilers. So if a party requires a man for that purpose he takes, for the most part, any man with two hands and two feet, gives him instructions about keeping plenty of water in the boiler and not to interfere with the safety valves, and he is left in charge of the boiler. In some cases this is safe enough, for some keep adding to their knowledge, but with old and infirm boilers it is risky not only to the man in charge of the boiler but to every person in or near the premises. It is well known that many boilers in small concerns are in charge of incompetent persons, and that there are not more explosions is more from good luck than anything else. I place more reliance in a competent man in charge than in a strong boiler, for he knows the condition of the boiler and will treat it accordingly, but an incompetent man may be in charge of a strong new boiler and may so burn the sheets at any time in an hour so as to materially weaken it, and being ignorant of that may get up such a pressure of steam as to explode the boiler, which pressure may be many pounds less than usual. There is a danger too of many boilers being too small for the duty they have to perform, and therefore require forcing and thus narrowing the margin of safety between the pressure of steam required and what is intended to carry.

There used to be a considerable mystery as to the cause of boiler explosions, many persons taking the ground that the steam was converted into its original gases, oxygen and hydrogen, which in turn may have become ignited in the boiler and caused the explosion. That theory I do not hear so much of these days and is itself about exploded. Water coming in contact with red-hot iron is decomposed into oxygen and hydrogen, but the oxygen at once unites with the red-hot iron producing oxide of iron, then there is left only hydrogen, which alone is not explosive unless a certain amount of oil gets into the boiler from feeding water condensed from the engine cylinder, and if so the amount would be so small as to be not worthy of consideration. I believe there is no mystery in a boiler explosion; merely some law of natural philosophy has been violated and that all explosions can be laid either to a weak boiler or to an excessive pressure of steam, from various causes which a competent man in charge will provide against.

On April 8th the boiler in Mr. Miller's tannery at Orillia exploded late in the evening when every person had left the premises. For fuel wet spent tan bark is used, being first dried in a pan over the boiler, which heats the bark and dries off a portion of the water. When fuel is required for the furnace a supply is let down through chutes arranged for the purpose. When the fireman had gone for the day there was still some fire smouldering in the furnace. Later in the evening by some means a fresh supply of dried bark got into the furnace and fed the fire sufficient to raise steam up to the bursting point. I did hear that the safety valve was stuck, as it would seem probable from the result. The building was damaged considerably.

About the middle of December, at Bright, the boiler in a chopping mill blew up. No one was injured.

These are all of the boiler explosions I have any knowledge of as having occurred in the Province in the year 1898.

OTHER EXPLOSIONS.

In May, in the benzine refining house of the National Oil Co., Petrolia, the gas exploded, setting the building on fire and severely burning Mr. Fiddes, causing the loss of one eye. The tank wherein the benzine was treated with sulphuric acid was considerably elevated above the ground. Mr. Fiddes was up there when the explosion took place, and had to find his way down through smoke and flames. The cause of the explosion is not known. These explosions are not infrequent in refining houses,

the oil, or benzine, as the case may be, being treated with sulphuric acid, which consumes the organic impurities contained therein, creates considerable heat by its action, and has to be carefully watched to keep the temperature at a safe point, so as not to drive off any lighter gases there may be in the benzine so treated. (Here it may be asked, is the temperature always carefully watched?) The mystery is as to the cause of explosion, what ignites the gas? Some suppose that electricity is the cause, and I have heard that some refineries in Ohio have adopted the plan of running a copper wire from the top of the tank to the ground to conduct off the electricity. I have not heard of the success of this experiment. I have a theory as to its cause, viz., that from the steel nails in the shoes of the operator at the refining house, coming in contact with grit or gravel on the stairs, or platform around the tank, may strike a spark which would ignite the gas; and the same precautions, in this respect, taken in powder factories, should be taken in this industry—wearing felt shoes. The gases from the lighter distillates of petroleum are more apt to be ignited by a spark than is powder or other explosives of this nature, for with the latter one has to step on the powder before it will explode. But in a refining house it is different; the gas is everywhere, over head and under foot, is generally diffused, and being heavier than air, there is sure to be enough at the ground to explode violently. A spark is sufficient to ignite the whole volume of gas, and as it is everywhere present in a refining house, the danger is greater than in a powder mill, where the explosive would need to be under foot, and would not spread unless there were considerable quantities within reach of the original explosion. Of course the new high explosives, such as nitro glycerine, dynamite, mellinite, rack-a-rock and others, are different from the old fashioned powder. They are what chemists designate as unstable compounds, the elements of which they are composed not having a strong affinity for each other, and easily disturbed; often a shock or concussion will set off a quantity. I think that the precaution of wearing boots without nails, or felt boots, could very safely be observed at refining houses, and if they did no good, at least they would do no harm and give the refiner the benefit of the doubt.

At Glenwilliams, on December 12th, at Mr. Beaumont's woollen factory, an explosion of benzine took place, through Mr. Beaumont with a lighted lantern going near a tank containing benzine, when the vapour exploded, burning him severely.

At Leamington, on December 17th, Ludlum's planing mill was burned by the explosion of natural gas used for fuel. I have no particulars of this occurrence. The gas from the wells was originally at a pressure of 500 pounds to the square inch, but the pressure has decreased to about 460 pounds. This pressure can be controlled to the wants of consumers, whether for heating steam boilers or to be used for cooking, when it is given out at a half pound pressure. Its flame is rather blue for illuminating purposes, and gives off a strong sulphurous smell in burning. A serious accident happened a few years ago at Walkerville, to which place natural gas was conveyed in pipes from Kingsville, a distance of about 26 miles. The town people were celebrating some occasion and were to have an illumination by natural gas. A man was taking off the cap of an upright pipe, seven inches diameter, conveying the gas, which was at a pressure of about 500 pounds, I am informed. He had given the cap a couple of turns when the immense pressure forced it off, striking him and severely injuring him. I mention this to show that new dangers arise with new conditions or circumstances. Only experience, the best teacher, will point the way to necessary precautions.

A few years ago there were quite a number of disasters among ignorant and careless quarrymen, from improper handling of nitro-glycerine and dynamite. As people gained knowledge from experience the mishaps are not so numerous, though many more people are using these dangerous compounds. For myself I give them a wide berth and do not want to be near them. Every winter we read of people being killed by thawing frozen nitro-glycerine, and by carelessly handling it or cans that had contained it. Some years ago a teamster hauling a quantity from the railroad station to the quarry, was going down a hill (it is supposed the horses were running), when the whole of it exploded and blew

the driver, horses and waggon, to atoms. This disaster was caused by the jolting of the waggon. In the G. T. railway yards at Stratford, some years ago, a quantity of nitro-glycerine was in a car that was being shunted; it exploded from the concussion made by the cars hitting together, doing great damage and making a great hole, twenty feet across, beneath the track. It was a liquid, and some of it is supposed to have leaked from the tins, causing a small explosion by being rubbed by the tins and this small explosion set off the mass of nitro-glycerine. After this it was suggested to have liquid explosives absorbed into saw-dust or porous earth, and since the danger in handling is not so great, with intelligent handling.

These remarks on the subject of high explosives, are a little out of my realm, though, in a way, allied to it, but the dangers of natural and illuminating gas, benzine, gasoline, turpentine, spirits, ethers, etc., are all from ignorance of their properties, and if a knowledge of these is obtained and observed in handling them, it can be done safely.

A neglect to observe the precautions caused the death of a young man in a neighboring town, who had an interest in the local gas works, making gas from petroleum (once distilled). On this occasion there was a fear that there would not be petroleum sufficient to supply gas for the night, till a fresh supply came forward. After dark he was at the gas works and, I am informed, lowered a lighted lantern into the tank containing the supply of petroleum (or gas oil), when an explosion took place, so badly burning him as to cause his death the next day. This unfortunate young man had a scientific education, and well knew of the dangers of gas-making and what precautions to take, but, I suppose, in his anxiety about the supply of oil to give the town light, he overlooked the precaution; or he may have thought the vapour of the oil would not take fire from a lantern, but it was not a Davy safety lamp.

Again, Mr. Beaumont blames himself for going near a benzine tank with a lighted lantern. So then not only is a knowledge of the dangers incidental to some industries necessary, but also to keep that knowledge constantly before you, never for one moment letting it leave your thoughts. This is perhaps more easy to recommend than to carry out, for I often think that many of the accidents arising from a monotonous occupation, such as feeding metal presses and some printing presses, etc., the mind becomes benumbed, as it were, from monotony and ceases to do duty as a guard against accident. But the fact of absolute safety depends on always being on the alert. But how about other people's carelessness? One cannot altogether control that. Very frequently some workmen receive serious and sometimes fatal injury through the carelessness of one or more of their fellow workers. Let every worker do his full duty to himself, as to taking proper precautions, and there will not be so many accidents of an unpreventable nature to report. Where there is machinery running there is always the risk of unforeseen accidents happening, such as the breaking of a shaft, pulley or belt, and others, inflicting injury. The Factories Act can do and has done a great deal to prevent accidents, but those of an unpreventable nature or those happening for want of exercising proper caution depend on the workers themselves. It is satisfactory to note that accidents in the woodworking industries are less this year than last—31 against 35 in 1897; this, too, in the face of improved trade conditions, which means more hurry and activity in factories and also an increase in the number of operators.

On the other hand, in the metal trades there were 26 accidents against 20 during last year. There were a couple more of accidents from small gears of looms and spinning jacks. Accidents from these have been of rare occurrence. Elevators caused some accidents that were wholly unpreventable. The injured persons standing with a foot projecting over the platform so as to be caught between it, in ascending, and some projecting obstruction in the shaft. I have suggested that such projections should be beveled down where practicable, so that the toe would be crowded back on the platform when it came in contact with the projection. One had a hand injured in taking an ice-box up on the elevator; did not properly place the box, so it caught in going up. He omitted to obey the old proverb, "What is worth doing, is worth doing well."

DANGEROUS TRADES.

Some years ago the British Government, with the view of further improving the conditions of work in certain industries, appointed a committee "to enquire into and report upon certain miscellaneous dangerous trades." That committee has reported upon some ten or more of the specified dangerous trades, and through the courtesy of Thomas Oliver, M.D., F.R.C.P., Physician to the Royal Infirmary, Newcastle-upon-Tyne, a member of that committee, I have received a copy of the second interim report upon electrical generating works. This reports upon the process, the dangers of working, and makes recommendations. In view of the general use of electricity, which is becoming more and more extended, I have thought it well to give the essential part of that report, which will be found in an appendix, in the hope that the information found therein will be of service in preventing accidents. Most persons in charge of electrical generating works already know of the dangers and the means to avoid them, but new employes are ignorant of them, and a liberal and free distribution of the Factory Inspectors' Reports will tend to disseminate the knowledge of those dangers.

I have the honor to be, Sir,

Your obedient servant,

ROBERT BARBER.

Toronto, January, 1899.

CENTRAL DISTRICT.

To the Honorable the Minister of Agriculture :

SIR,—I have the honor to submit the following Report on Factories Inspection for the Central District for the year 1898 :

It is pleasing to note that the industries report business as more brisk than it has been for some years, and it is to be hoped that the improvement may continue for some time. It would be expecting too much to hope for a permanent improvement. It is to be regretted that the improved condition does not afford opportunities for the employment of the "surplus" labor which is still in evidence.

AGE OF CHILDREN.

Complaints have been made that children are employed under age in factories, and the Inspectors are requested to note the appearance of the children to be seen on the streets, after six o'clock p.m., as evidence that such is the case. It would be well for those who complain to ascertain whether children under the age of fourteen years are employed in shops or factories. Children under fourteen being permitted to work in shops although not in factories. I believe that the age limit at which children should be employed in shops, should be raised from ten years, as at present, to twelve years at least, if not fourteen, to conform to the Compulsory School Attendance Act. The case of widows who are left with large families to provide for, is advanced as a reason why children should be allowed to be employed under fourteen years of age. That widows should be left to struggle with the up-bringing of families, and that the children should be deprived of school attendance because of a father's death, is not very creditable to christian civilization.

HOURS OF LABOR.

Complaints have been made that the limit of sixty hours has been exceeded in some cases, which on investigation have been remedied, and in one case there was a prosecution for the violation of the Act. In one case, where an overtime permit had been granted, allowing thirty six days on which overtime was allowed to be worked, complaint was made that the number had been worked, but that the firm intended to work an additional number of days. On investigation I found that such was the case, and stopped the overtime being worked. In another case, where a permit had been granted, the firm desired one department to work overtime, which had not worked on thirty-six days. But as other departments had worked the full limit, I could not permit any further overtime until twelve months would elapse from the time overtime was begun to be worked. The female employees are watching the days on which overtime is worked more closely now, and are not so indifferent to their interests as heretofore, but make their complaints known, anonymously or otherwise.

The Women's Council, and other kindred organizations, take a greater interest in the condition of the female operatives, and send complaints of any infractions of the Factories Act, which come to their notice—an oversight which will tend materially to the benefit of the operatives. The great majority of employers endeavour to carry out the provisions of the Factories Act, and are often unaware of infractions until they are brought to their notice. There is a hesitancy on the part of the workers to make any complaints, fearing that if they were to complain a loss of work would result.

CLOSETS.

Complaints have been made in regard to insufficient closet accommodation. Cases have occurred where, although the employees have increased in number to double what the accommodation was intended for, no additional accommodation had been provided. In one case a change of tenants deprived the employees of an industry, the use of a convenience. The employer was willing to put in one provided he would be allowed to deduct the cost of the closet from the rent, which the owners of the building would not allow. Under the Health Act, the local Board of Health could authorize the tenant to deduct the cost of the closet from the rent. The Local Board were notified of the circumstances, but, presumably for local reasons, did not care to take action in the matter. As under the Factories' Act the employer is responsible, I had to notify the employer that he must either provide the convenience or vacate the premises. Having lodged an information I left the matter to be dealt with by the Police Magistrate.

Complaints have been made by tenants and employees in offices as to the lack of conveniences; but the Inspectors under the Factories' Act and Shops' Act have no jurisdiction in regard to offices. The employees consider that as they are similarly constituted, conveniences should be provided for them as well as for those in factories and shops.

COMPLAINTS

In many cases where complaints are made by employees, in regard to the sanitary conditions of the premises in which they work, a fear is expressed lest their employer should learn the name of the party complaining, and thereby lead to loss of work. It is cause for regret that the fear of the loss of employment should deter those who may be suffering in health as a consequence of a lack of sanitary appliances, or whose safety may be endangered by a lack of safeguards, from making complaints in regard to the same. Cold workrooms in winter are cause of complaint in sedentary occupations. As more and better work may reasonably be expected from employees in a comfortably heated work-room, it is in the interest of the employers to see that there should be no cause for complaint on the part of the workers in that respect.

Frequent complaints have been made of insufficient light in moulding shops, and the consequent danger incurred by the workers therein while "pouring off." While no provision is made under the Factories Act in regard to insufficient light, yet if the safety of any person employed therein is endangered, by reason of insufficient light, an employer might be held liable for any accident which might occur. Lime-washing the interior of factories, and moulding shops particularly, would tend to brighten up the surroundings of the workers, and aid in promoting health as well.

MEAL TIMES.

While no decision has been given in regard to the times allowed for meals of certain persons employed in factories in Ontario under the Factories Act, the following report of a case in the High Court may be of interest: Some employers are of opinion that their females can work during a portion of the dinner hour if they wish to do so. It may appear hard that they should not be allowed to do so; but when it is considered that many females are on their feet while at work, they require the full hour so as to enable them to get a rest, while those who sit at work might not be inconvenienced by taking less than an hour, but those should have regard for the welfare of the others who have to stand while at work. In some cases employers have invited their employees to send in a request to be allowed to take less than an hour for the noon day meal, and imagine that by obtaining the signatures to the request, they, the employers, would be thereby exempt from any responsibility under the Factories Act. If such were the case a Factories Act would be useless, as few employees would care to refuse any request which the employers might ask them to sign. The following is the report of the case above referred to:—

From the *Solicitors' Journal*, London, England, [1898] 1, Q. B. 881.

Prior v. The Slaithwaite Spinning Co. Div. Court, 29 April. Factory Acts,—Meal-Times—Employment—Factory and Workshop Act.

Section 17 of the Factory and Workshop Act, 1878, provides (sub section 2) with respect to the meals of persons employed in a factory or workshop that: "A child, young person, or woman shall not during any part of the times allowed for meals in the factory or workshop, be employed in the factory or the workshop, or be allowed to remain in a room in which a manufacturing process or handicraft is being there carried on." Section 19 provides for the times of meal times being specified in a notice affixed in the factory or workshop, and that the times allowed for meals shall be deemed to be the times so specified. Section 94 provides, "A child, young person or woman who works in a factory or workshop, whether for wages or not, either in a manufacturing process or handicraft, or in cleaning any part of the factory or workshop used for any manufacturing process or handicraft, or in cleaning or oiling any part of the machinery, shall, save in so far as is otherwise provided by this Act, be deemed to be employed therein within the meaning of this Act."

An information was laid against the respondents that a young person was employed in their factory during the time allowed for meals. The young person, a boy named Garside, on the 13th of November, 1897, stayed inside the factory, a textile mill, during the time allowed for dinner. He did so of his own accord, because it was warmer inside; he having finished his dinner before the dinner time expired. In order to while away the time, he set to work to oil the spindles. In doing so he was acting contrary to the rules made by the respondents and affixed to the mill. It was no part of Garside's duty to oil the spindles; his duty was to tie up broken threads. The justices before whom the information was heard dismissed it upon the ground that there was no evidence that the boy was employed by the respondents, but they stated a case for the opinion of the High Court. It was contended by the respondents that the acts done by the boy were not necessarily evidence that he "worked" within the meaning of section 94. These acts might have been mere mischief or done for the sake of amusement. It was further contended that the respondents were entitled to exemption under the terms of section 87.

The Court (Wills and Kennedy, J.J.) allowed the appeal, and remitted the case to the justices to convict.

Wills, J., said that under the words of the enactment extreme cases of hardship might arise from which the mind revolted; but those cases were not of frequent occurrence and it was important to see whether it was necessary for the legislature to cover such cases in order to attain the objects aimed at by the legislation. The policy of the enactment was to ensure that certain classes of persons employed in factories and workshops should have the hours allowed for their meals preserved intact. That policy could not be carried out in the manner provided in the Act, and it mattered not how rigorously it might work in some cases, if the case fell within the terms of the Act it might be dealt with accordingly. In the present case the boy was oiling spindles during the dinner-hour. He was none the less working in spite of the fact that he was doing what he did to amuse himself; nor did the distinction avail that his doing what he did was contrary to orders. The magistrate did not find that the boy was not working; all he found was that he was not employed by the respondents. The respondents were not entitled to the benefit of the exemption contained in section 87 of the Act, for it was essential to that exemption that an information should be preferred against another person.

ACCIDENTS.

The number of accidents reported and ascertained as having occurred during the year are eighty-one, four of which were fatal. Of the whole number eighteen were caused by circular saws, one of which was fatal.

It is to be regretted that where fatal accidents occur, or those where loss of limb or other injury renders the person injured unable to earn a living, and where a family is left dependent on the community, no fund should be available to aid the family. In the case of the family of David Higgins, whose death resulted from being scalded, an

appeal has been made to the public, to aid the widow who has been left with five small children, the eldest of whom is only seven years of age. It becomes a question as to whether it should be left to private charity, or whether the state or municipality should grant aid. It might be asked who has been most benefited by the labor of the deceased?

It is strange with what indifference reports of the occurrence of accidents are sent in. In order that products may be cheapened, machinery is used necessitating risks of life and limb in the operation thereof. With the knowledge that where machinery is in use accidents will occur sooner or later, yet no provision for a fund is made to grant aid to the sufferers by reason of accidents. Recourse may be had to the law, but usually those most interested are unable to obtain legal services, and even where compensation is obtained the results are unsatisfactory to one or other of the parties, and ill-feeling results.

It is questionable whether all accidents which occur in factories are reported, as in many cases accidents are only ascertained as having occurred on visits of inspectors. Prosecutions would require to be resorted to in order to overcome the tendency to forgetfulness. Many accidents occur in places other than factories, or minor accidents may occur in factories which do not require to be reported under the Factories Act. Accidents only require to be reported where the person injured is prevented from working for more than six days next after an accident.

GRINDING AND POLISHING.

While great improvement has taken place in factories where grindstones and emery wheels are in use, there is still room for improvement. It is cause for regret that even in wet grinding lives should be sacrificed by "grinders' consumption," caused by the dust generated by "hacking" the grindstone when at rest, which requires to be done in some cases as often as six or more times a day according to the class of work to be performed. At some classes of work "hacking" requires to be done only twice a day. Care in the selection of those free from throat and lung affections would to a great extent meet the requirements in this case. While the great majority of employers endeavour to comply with the requirements of the Act, in providing means for the removal of dust, there are always cases where pressure is necessary to compel proper means to be provided for its removal as far as practicable. A case in point is reported under the head of prosecutions.

PROSECUTIONS.

There were three prosecutions for contraventions of the Factories Act.

Arthur Little, Gravenhurst, for allowing his son under fourteen years of age to be employed in a saw mill, was fined \$5 and costs. Complaint was made to me that the boy was not the age represented; the parent had given a certificate that the boy was over fourteen years of age. From the information received I had reason to believe that the certificate was false. I told the parent what I had heard, he assured me that the information given me was not correct, and that I might rely on his statement. On investigation at the Registrar General's department I found that the parent had certified to the boy's age as being two years older than he really was. Hence the prosecution. It would be well for those who make a false entry to know that the 37th section of the Factories Act R.S.O. 1897, Chap. 256, reads thus:—

Every person who wilfully makes a false entry in any register, notice, certificate or document required by this Act to be left or served or sent, or who wilfully makes or signs a false declaration under this Act, or who knowingly makes use of any such false entry or declaration, shall, upon conviction thereof, be liable to imprisonment in the common gaol of the county wherein the offence was committed for a period not exceeding six months or to a fine of not more than \$100 with costs of prosecution, and in default of immediate payment of such fine and costs, then to imprisonment aforesaid.

E. P. Watson, of St. Catharines, for employing a girl for more than sixty hours during one week without permission, was fined \$10. Complaint was made that females were being worked more than sixty hours a week. The defendant in this case had on a former occasion, when a similar complaint was found to be true, promised to conform strictly to the requirements of the Act, and was not then prosecuted. On investigation I found that fourteen females had worked more than sixty hours in one week. I lodged information against him in one case only, with the above result. He appeared to be of the opinion that he could afford to violate the law. I explained to him that he would be liable to prosecution for every one so employed, and that in any future like infraction a prosecution would be instituted in each and every case.

Thomas J. Carroll, of Hamilton, for keeping a factory unlawful, was fined \$2 and \$8 costs. In this case the inlet piping for the removal of dust from the emery wheels was eight inches in diameter with an outlet pipe four inches in diameter. The joints and connections were open and ill-fitting and the plant as a whole was the worst botched work of the kind that I have seen in twelve years' experience. The defendant took the ground that he had complied with the requirements, and as he stated that he would do nothing more either for the Government or me, it was necessary to see whether the police magistrate could cause the necessary change to be effected. Considerable improvement has been made, and so far no further complaints have been received.

It is cause for regret that it should be necessary in the closing years of the nineteenth century to compel some to act humanely towards their fellowmen, in providing means to preserve their health, which otherwise would be likely to be permanently injured.

An information was laid against A. W. Porte, of Toronto, for not allowing females in his employ one hour for the noonday meal. In this case the employer desired to make a test case, the employees having signed a requisition to be allowed to commence work at 12:30, instead of 1 o'clock, so as to enable them to quit work at 5:30 instead of 6 o'clock. If employees were to be allowed to requisition themselves out of the operation of the Act, it would be useless to pass a Factories Act. While those who sit at work might not be inconvenienced by having only half an hour for the noonday meal, those who stand at work require an hour for rest. Selfishness rules in this as in other matters, and some ignore the welfare of others so long as they themselves are satisfied. The employer having expressed his intention of giving the full hour, the charge was withdrawn.

BAKE SHOPS.

In some cases limewashing is not attended to as punctually as might be. Troughs and other utensils are kept clean as a rule, and in most cases as clean as could be desired. Complaint has been made to me as to the journeymen being required to work on Sunday night in Ottawa, but as I was unable to secure evidence of any infractions I was instructed to leave the matter with the Crown Attorney and the local authorities to deal with. The employing bakers claim that the public demand new bread on Monday morning, hence the reason for Sunday work, and they want to get the wagons out early on Monday, fearing that customers would be lost if any other wagons get ahead of theirs. The drivers of bread wagons want to get out early on Monday morning, that being the day for making the weekly collections. The journeymen claim that if they are allowed to work at 10 o'clock on Sunday night it would not be long before they would be required to start work on Sunday afternoons, as is alleged to have been the case in Toronto, where, as stated, for fifteen years no Sunday work was required to be done other than setting a sponge or making a "straight dough," but gradually one or two began to start earlier, and others followed, until finally work was begun on Sunday afternoons, and the working bakers claim, that similar conditions would result were work to be allowed to be begun at 10 or 11 o'clock on Sunday night. They also state that, with one or two additional helpers, beginning after Sunday midnight would enable the bread to be got out in sufficient time on Monday morning.

As many of the employing bakers are satisfied with the law as it is, the only course would be to bring the matter before the Police Magistrate where evidence of a contravention of the Act was obtained, and let him deal with the case.

CERTIFICATES OF BIRTHS.

Having on several occasions recommended that children before being allowed to work in factories should be furnished with a teacher's certificate of age on leaving school, I would again urge the necessity of obtaining such certificate. When it is considered that many of the children have been born in Great Britain, the United States, Europe, and in Canada out of the Province of Ontario, where there is little chance of verifying the correctness of a certificate, a teacher's certificate as to the age of a child in such cases might be relied on. Even where children are born in Ontario, out of thirty certificates sent for verification, fifteen were not on record, eight were on record and correct, seven were on record but false dates were given. In cases where false certificates are given, where the father signs the certificate, the blame is often laid on the mother. A case in point occurs to me where a father, requested to explain why he had given a false certificate, replied as follows:—"With reference to my boy working in the cotton mill who is under age, it was through the mistake of my wife and by me not looking into it. I trust you will not take any action in the matter, as I have a large family to support." In reply, I wrote, "What is the use of trying to shift the blame on your wife? You knew when you signed the certificate that it was false, and you ought to be man enough to own up and acknowledge your fault. *You acknowledged to others that you knew he was under age, and you promised you would assume all responsibility and express regret for having given the false certificate. Try and do so, and don't put any blame on your wife.*" In answer, he wrote, "I am very sorry I signed the certificate stating my boy was of age. I did not stop to think I was doing such a wrong, but I fully realize it now, and I promise not to repeat it again." Having pleaded not to be prosecuted on account of his large family, the offence was overlooked. But it will be necessary to make an example of some to put a stop to false certificates being signed.

OVERTIME PERMITS.

Twenty-five overtime permits were granted during the year. The greatest number granted in any former year.

Appended is a list of accidents.

I have the honor to be, Sir,

Yours very respectfully,

JAMES R. BROWN,

Inspector of Factories.

EASTERN DISTRICT.

To the Honorable the Minister of Agriculture for Ontario :

HONORABLE SIR,—I beg to submit herewith my annual report for the year 1898.

In making my inspection I was pleased to notice the continual progress in protecting machinery to prevent accidents, and I must say that in the majority of cases they seem to have complied with all the requirements of the Factories' Act.

I have, however, found in many cases neglect more on the part of superintendent to renew protection to machinery which have been destroyed or to have them replaced when temporarily taken off. It is nevertheless gratifying to notice that there is a decrease in these small matters.

Now that the employers have understood the necessity of all the requirements of the Act in protecting the employees from accident and loss of life, or injury to their constitution, by providing guards to machinery, proper fire escapes, and cleanliness in all work rooms, as well as ventilation and dust fans, and that they have willingly so far complied with most of these requirements as much as possible, it might be opportune at this present time to consider if some amendments could not be introduced at some near future time to further extend the protection to life, constitution and morals of the employees, especially the young.

I have noticed in several factories more activity this year than for several years past, and in some the increase of business has been such that they contemplate extension to their buildings. In such case no extension or no new building should be permitted to be erected and used for factory purposes unless the plans have been submitted to the Inspectors, as far as regards the ventilation, construction and location of water closets, and the construction and location of fire escapes. The Inspectors, having experience as to the requirements of the Act in these matters, and being in a position to know how the hands to be employed in these factories can be better protected, must be in a position to better advise the employers in these respects. And they also know how difficult it is to have these requirements properly carried out when not provided for in the construction of the building. Another matter that could be enforced in these cases would be to have boiler houses provided for and located outside the main building; in many cases the employers themselves understand the importance of this measure and have removed their boilers outside, as I have noticed this year at the knitting factory in Perth as well as in Cornwall, as already mentioned in my previous report. With regard to this question I consider, as I have previously stated, to accord full protection to employees it would be necessary that all parties using boilers which are not insured in some reliable companies should have them inspected once or twice a year by properly qualified and licensed boiler inspectors and a certificate of such inspection be presented to the factories inspectors at their visits. It would also be necessary to provide in some manner for the employment of none but competent men as engineers.

SANITARY CONDITIONS AND VENTILATION.

Most of the factories are kept in a clean and healthy condition, some of them whitewashing their walls twice a year; water closets are kept clean, but yet in many instances in old factories the approaches are not separated, although the water closets are separated by a low board partition. There are, however, some small establishments where they are slow and neglectful on this point, floors and walls are kept too long without being cleaned and, in the case of saw-mills and factories for the manufacture of wood, very often the cuttings of wood, sawdust and shavings are allowed to accumulate around the machinery, rendering them difficult of access and dangerous to the parties using them. In every case of this nature which we find at our visit we are

told that it was due to pressure of work for the past few days and they promise to attend to the matter in a day or two—a promise which is not always carried out. But I must say that in the matter of cleanliness there is also a vast improvement and a better desire on the part of the employers to carry out the wishes of the inspectors in that respect. In a few small places proper water closets were not provided, as, for instance, at the woollen mill in Perth small board closets are built in the field at a distance of some two hundred feet from the factory, altogether unfit for use during the winter season. This mill has fallen into the hands of a new company and new management and they have promised to attend to the matter at once on completing their building. In one cigar factory in Brockville there is no water closet accommodation for females, and, although I had previously notified them to have some constructed, the employer had not yet attended to the matter at my last visit of inspection this year. The ventilation has somewhat improved, but in some instances not to the extent that we might expect.

FIRE ESCAPES.

I have nothing to add with regard to fire escapes to what I have already stated in my report for the year 1897. In every factory where ropes had been ordered they have been placed to my satisfaction and in accordance with my instructions. It would be advisable that in the construction of new factory buildings, extension to or remodelling of old ones, the proprietor be required to build two leading stairways at opposite sides and in towers separated from the main work rooms by iron or iron-covered doors opening both ways, as no fire escapes can be of such service, and none can be as reliable in case of panic, as such protected stairways used as ordinary passage way by the employees. I must state, however, that the danger from fire is reduced to a minimum, as during the working hours it is almost impossible for a fire to spread rapidly with all the available automatic and other means of stopping fires almost at their origin.

ACCIDENTS.

I am pleased to be able to report that the number of accidents decrease continually every year. This, I consider, is due to the increased protection to machinery. Some years past, when the Act was being put in force, scarcely one week would pass without the publication of some very serious accidents; in fact, in one saw-mill I have known of four fatal cases occurring in the one year from the same machinery. Now, after a few years' operation of the Act, we have but very few accidents to record, and very seldom any of a serious character, and in that mill to which I refer above I had to record but one fatal accident in eight years, and that was entirely due to the fault of the employee, a young boy who, in attempting to play about a shaft, got caught and was whirled around and killed against a post before assistance could reach him.

The following are the accidents reported to me:—In the J. W. Mann Manufacturing Co., of Brockville, one Morton Olds had his right arm drawn into revolving knives of a surface planer and cut off while attempting to remove a piece of wood which stuck in the frame of the planer.

On the 14th of July one William Barries had his foot caught on shaft in a filing room in the W. C. Edwards' Mills, and was so badly bruised that amputation became necessary.

On the 26th of same month one George Kelley was killed by being caught in the belt of a machine he was operating in the George Gillies hardware factory of Gananoque.

On the 20th of August one Wm. Buckland had his left fore arm cut by a circular saw in the wood room of the Toronto Paper Mill at Cornwall.

The machinery where these accidents occurred was fully protected.

I have had to grant a few permits to work overtime to fill orders in time to the Canadian Colored Cotton Mills at Cornwall and the Rosamond Woollen Mills at Almonte, and one woollen factory at Appleton.

BAKE SHOPS.

So many bake shops have been built previous to the passing of the Act for their regulation, and regardless, therefore, of any of the provisions therein contained and also regardless of the comfort of their employes, that to enforce the requirements of the Act would entail the entire reconstruction of the buildings, and in many cases the exigencies of the land would not permit of any extension to provide for wash-rooms, or resting or sleeping places. However, as much as circumstances will permit changes are ordered and carried out for the purpose of giving more comfort to workmen and with a view to improve the sanitary conditions. To insure the proper enforcement of clause 41 of the Act it would be necessary that all workmen in bake shops be provided with a certificate from some licensed doctor that they are not affected with any of the diseases therein mentioned and such certificate be presented to the Inspector at the time of inspection.

CHILD LABOR.

While it has been a pleasure to me to notice the decrease of accidents and the increased protection to machinery, I have observed other evils which are not so easily remedied, viz., danger to the moral and physical as well as intellectual development of the young by being confined and permanently employed in factories for sixty hours every week. When the Act came in operation the employers mistrusted the Inspectors, and were so prejudiced against them and the Act that they considered it as an interference with their business and liberty as citizens; but by using much discretion and enforcing the provisions of the Act gradually and in such cases only which seemed, at the time, reasonable to the employer the Inspectors have succeeded in divesting him of all prejudices; and in my district I must say that I have now reached a point where I can secure the co-operation of mostly all employers and many overseers, not only in the carrying out of all suggestions made in accordance with the Act, but also any propositions to better the conditions of the employees.

The greatest difficulty I have experienced so far is the ascertaining of the proper age of children employed. I have noticed this year many who appeared to be under the legal age, but on being questioned, invariably replied that they were old enough to be employed, and in every case a certificate of age was left at the office. By reading these certificates, which are mostly prepared by the employer or clerks and purported to be signed by the parent or guardian, it is evident that they are made simply for the purpose of relieving the employer of the responsibility of the employment of said child, and in case of prosecution no convictions could be secured, as no evidence could be given as to the signatures of the parents. I have ordered that in future no certificates be taken unless signed by the parents in the office of the factory and witnessed by some one who could give evidence if required. Some special forms of certificates of age will have to be adopted in order to make them more reliable, and if containing false statements the guilty party could be successfully prosecuted.

There is much difference of opinion as to the minimum age at which children should be allowed to work in factories, some even consider that children should be allowed to work at any age and that the parents should be the only judge in the matter, and that any law on this subject is a restraint of their privileges and their authority. In some of my previous reports I have given reasons to show the wisdom of the government in passing such laws, and suggested that they could even go somewhat farther in the restriction of employment of children. Considering that many children have ceased going to school at the age of fourteen and have obtained at that age a reasonable common education considered sufficient by their parents, who, owing to their financial position and sometimes the large number of the family, could not afford to keep them at school any longer, the minimum age of fourteen years to work in a factory might be considered proper, but this age should apply to all factories. To allow them to work in certain of them at a younger age is simply to deprive them of attending schools, and it is well known that when once

children are taken away from schools and sent out to work it takes away from them all desire to be educated, and develops in their mind the greed for money; or very often it gives their parents a chance to sacrifice the future of their children to their extravagance, and sometimes intemperance, as I have noticed.

This year I have made my inspections especially with a view of studying the effect of confinement and permanent work on the young children, and I am sorry to have to report that it is generally disastrous to them both as to their physical and intellectual development as well as to their morals. In saw-mills one cannot fail to observe that the work is of such a character generally and hours of work so long that none but adults should be employed. Their constitutions and minds have been dwarfed and dulled by the constant employment at work of a dangerous character, often above their strength. In other factories, such as cotton and woolen, you will observe the young children somewhat brighter, but of that kind of brightness which denotes that their morality has been considerably contaminated by constant contact with grown up persons of both sexes, where they frequently hear very obscene language. I had occasion to learn from two young boys in Cornwall to what extent this danger exists when they related to me what "fun" to use their expression, they had in congregating with both sexes during recess or before and after working hours. I have consulted with the managers, who admitted the danger, and promised to co-operate with me in getting at some means to remedy it. I have no doubt that it is from this class of persons that most of the criminals are coming. In Kingston, I was shocked when entering a cigar work-room to see a large number of boys and girls making cigars, and wetting with their tongues, already soiled, the tobacco leaves of the cigar. This must be very injurious as well as conducive to bad habits and morals. How to remedy such a state of things is difficult to suggest at the present time, but I expect if the employers and overseers continue to give the Inspector their co-operation, as they are now willing to do, I have no doubt that considerable improvement could be obtained. I have in my district small mills where a sufficient number of hands are not employed to bring them under the control of the Act. In these small mills young children are employed, and often the machinery is of a dangerous character, being old, having been removed from larger mills. I consider that all these mills where power and machinery are used should come under our control.

In conclusion I may say that if no child was allowed to be employed under the age of say 16 years unless he could read and write, or that he produces a certificate that he has attended schools such time as is required by the School Act, a large number would be dismissed from the various mills or factories, and this would have the effect of preparing their mind, to better resist the danger to their morals by the contact with older persons of different sexes, and would ensure a better class of citizens for the next generation.

I have the honor to be, Hon. Sir,

Yours most respectfully

O. A. ROCQUE,

Factories Inspector.

REPORT OF FEMALE INSPECTOR OF FACTORIES.

To the Honorable the Minister of Agriculture :

SIR,—I have the honor to submit to you my Annual Report of inspection of factories, workshops, and mercantile establishments in Ontario for the year 1898.

In submitting to you a report of the work done for the year, you will readily understand how difficult it is to give an adequate idea of the actual work done—how much work is frequently done that apparently bears no immediate fruit, and of which no formal report can be made.

It is not necessary to enter into any extended comment as to the necessity or value of factory inspection, because the practical results of those years of effort in that direction under laws improved and amended from time to time show that such supervision was needed, and that the exercise of such powers has improved the conditions of factory life everywhere throughout Ontario.

It has gradually become apparent that for the protection of the employed legal regulations and restrictions are as necessary in mercantile houses as in the factory. I have inspected all places where women are employed frequently; some I have done monthly, others at longer intervals, according to requirement.

Very many valuable improvements have been made during the year. Nearly everything I have asked for in the way of bettering conditions in and around the factory for comfort, health, and safety has been complied with, and I wish to thank the employers, for their kind and courteous treatment and co operation in assisting me to better the conditions of the thousands of toilers in their employ. It is becoming almost a universal desire to do whatever should be conducive to the welfare of the workers with no more delay than might be necessary. Of course, a few objectors are always to be found to unaccustomed ways, but with time and patience the two great elements of success, they are getting to understand their duty and mine. Very few have attempted to resist or evade the law after official warning.

As in former years, I have endeavored to reach the smaller workshops, as in them there is most to be done—every visit the same necessity to order cleaning up and other necessary change which contribute to the well-being and safety of the work-women. It is necessary to visit these places frequently, because they have the most to be desired in the point of cleanliness. They are altogether different from the large factories, the space is small, not so well ventilated, and the idea seeming to prevail that anything will answer where so few are observed.

TRADE.

I am pleased to report that a fairly satisfactory year has been experienced in nearly every industry. Very many factories which have stood idle for some years are now running with a full force of operators and on full time. Every department and room in the factory or mill demands the attention of the Inspector. I think the year has been one of exceptional activity and prosperity, though there is much grumbling over the small margin of profits. Nearly everybody who wants employment can find it, which is quite a contrast to former years. As a result of the general business improvement, I find it less trouble to secure ready compliance with the laws.

COMPLAINTS.

I have received many written complaints, and others verbal, and some have reference to matters as to which, as the law stands, an Inspector has no direct power. I have given strict attention to all complaints of infringements of the law in connection with women's and children's labor.

I have had complaints of factories which were running overtime, and upon investigation they proved to be a misapprehension of the meaning of the law regulating the hours of labor so as to give a shorter day on Saturday. Many complaints have been received from females of injury to their health, which is caused by working during a considerable portion of the year in cold rooms.

I continue to receive complaints of charging the operatives with the thread used in the manufacture of women's and children's underwear, this being considered a grievance. Why should this necessary article be charged at all? Workers feel it quite as unjust to have to make a separate payment for this as to have to submit to a reduction of wages.

Unrestricted employment of women as waitresses to go outside to supper parties at the end of their full day's work in the shop is a subject about which I have received many complaints. After investigation I found I could do nothing, as the question is not dealt with by Shop or Factories Act.

CHILD LABOR.

The law prohibiting the employment of children in factories before the age of fourteen is, generally speaking, fairly well complied with. Most of the manufacturers will not employ a child whom they believe to be under the legal age, but there are others who do not hesitate to employ any child large enough to do the work, if they can protect themselves against the law by parents' certificates, or any means whereby the responsibility can be thrown on someone else.

The attempt is always made to show how great a hardship it would be in some of the families of the poor if they were deprived of the income which they derive from the labor of the children, but everyone who is familiar with the subject knows that child labor means cheap labor, and that the child becomes a competitor in the market of labor with his older brothers, and even with his parents, to the extent that child labor lowers wages. Upon one pretence or another children are defrauded of the most precious period of their lives. We often get children in the factory who could not sign their own names. The child should be afforded an opportunity to obtain at least an elementary education. Our work people are naturally bright, but would be much more so if well grounded in the three essentials, reading, writing and arithmetic, before being permitted to enter the factory. This should be at least the ground-work to build and improve upon; as for the children themselves, you will get a more intelligent class of boys and girls, who would give less trouble in instructing them in their duties, placing them all in a position that they need not be at the bottom rung of the ladder unless it is their choice. We appear to be working towards the time when it will be a question of the survival of the fittest. Why not educate the children to meet the emergency?

CONTRACT MAKING OF CLOTHING.

There is no more difficult matter to cope with than the contract system of making clothing. During the past year I have made a special effort to locate these shops, and as far as the law permits, with salutary effect. I am pleased to report that the idea has been impressed upon most of those contractors that they must keep their premises in a reasonably clean condition if they are to continue the manufacture of clothing; but it cannot be said, notwithstanding the improvement noted, that the evil has been eradicated. Only the surface conditions have been bettered. There is little in the method of doing this work to comment upon, except in the competition which invites contracts for very low wages. The most of those garment workers in the struggle for existence feel obliged to accept wages that are little above starvation. The expenses for lighting, heating, help and rent must be the lowest possible in order that some slight profit may be made. Those work shops, with few exceptions, are the worst kept. Located as best they can be in old buildings or in private houses, in narrow

streets, in lanes, back yards, sometimes basements, they lack equally in light, air and cleanliness. Old houses have very poor plumbing arrangements, and connections with sewers are miserable. To attempt to apply factory discipline in tenement houses successfully is next to impossible.

Some of those work shops, during the winter months, owing to the large consumption of gas, both for heating irons and lighting, constitute conditions which could be well improved upon. Another difficulty in many of those places is the unsanitary conditions of many of the water closets. In many cases the best endeavors of the employers were defeated by the slovenly and untidy habits of the employees. When closets are placed in the entry way, and are used in common by the females of two or more shops, it is difficult to place the responsibility of the uncleanness upon the proper person. I have worked hard and persistently to secure a better standard of cleanliness in this respect, but in some cases without procuring the desired result.

Another class is the family contractors, over which I have no control. The work is done by the piece, and as a consequence in families the hours of labor are wholly unrestricted, running often far into the night. The question has been put to me: "Why may a man work his own children harder than other folks, and why may clothing be made under dirty conditions where one family is working, when I only employ four and must set my house in order and conform to regular hours?" Their work is taken from these abodes, for they serve the purposes of work rooms, sleeping quarters and dwelling place, to the public clothing store, and placed side by side with the factory-made goods. It is not difficult to tell what the ultimate result will be. While factory legislation tends to purify and improve the factories, it does so at an increased expenditure to the factory owners, while these other places are not subject to any such expense. In order to remedy the evil we must begin at the foundation. The first measure stands the improvement of their dwellings. It is necessary that these premises should be rendered suitable to health, decency, and safety. There is a section in the laws of Pennsylvania to regulate the employment and provide for the safety of persons employed in tenement houses or shops where clothing or other articles are made or partially made. It is as follows:

Sec.—"Be it enacted that no room or apartment in any tenement or dwelling house shall be used for the manufacture of coats, vests, trousers, knee pants, overalls, shirts and hosiery, and no person, firm or corporation shall hire or employ any person to work in any room, apartment in any building, or part of any building, at making in whole or part of any of the articles mentioned in this section, without first obtaining a written permit from the factory inspector stating the number of persons allowed to be employed therein, and that the building or part of the building intended to be used for such work is thoroughly cleaned, sanitary, and fit for occupancy. Such permit shall not be granted until an inspection of such premises is made by the inspector. Such permit may be revoked by the inspector at any time the health of the community, or those so employed, may require it. Every person or firm contracting for the manufacture of any of the articles mentioned shall, before contracting for such articles, require the production by such contractors of the said permit from the factory inspectors, and shall keep a written register of the names and addresses of such persons to whom such work is given out to be made, such register shall be produced for inspection, and a copy shall be made on demand by the factory inspector."

This would make a vast difference in the clothing trade. It would compel the wholesale manufacturer to insist upon his outside contractors having a shop permit; then the contractor could not get work without it. Thus it would be necessary for him to have a clean and healthy shop before he could secure this permit. The same would hold good in reference to family workers, over which we have no jurisdiction. They would be subject to the same inspection, and would have to hold the same permit as the person who employs help to do his work. There would be a marked improvement in the conditions under which the manufacture of ready-made clothing is carried on. Permits from families as well as shops would be a strong point. I think it would be a comparatively easy step. It involves no sudden departure from the ordinary rules of business, and it offers to the merchants a guarantee that their clothing will be made under clean and healthy conditions, and in proper places. It would reach the end intended. We would have no difficulty in locating those shops. It would improve the conditions of this class of our community, and the security and safety of the public health.

OVER-TIME.

I wish to draw attention again to the subject of over-time. The experience of the past year has strengthened my opinion that over-time after sixty hours per week is injurious to the health of young girls and women employed in the factory or workshop, and that its abolition would be universally welcomed by working girls themselves—especially those employed by dressmakers, milliners, and tailors, which of all the trades are perhaps the most subject to season pressure. There are employers who deny the advantage of the over-time exemption, who refuse to claim it, and who nevertheless successfully meet the competition of others in the same trade who declare it to be a necessity. Various employers have shown it to be possible to satisfy the demands of a thoughtless public, and at the same time to guard the health of their employees, which should remove the seeming conflict of interest between the gratification of some few hundred of inconsiderate people on the one hand, and on the other hand the health of several thousand of women and girls; and in these trades women seldom receive extra payment for over-time. It also means two hours at the end of the day for which usually no payment is given. But if employees are off through sickness that time is deducted, even if they have worked the full sixty hours. Then, there is the evil which arises from women employed in workshops taking work home after having worked the full time in the factory. This evasion of the law we can do nothing with. There should be some way of putting a stop to what would practically become a regular system of over-time.

SANITARY.

The sanitary condition of our factories and workshops is a matter of great importance, for on it depends to a great extent the health, well-being, and energy, of the operators. The sanitary conditions have been improving during the year. In all cases where better sanitary arrangements were found necessary, notices were sent to employers, all of which have been complied with or are in the process of construction. The most of our manufacturing establishments are in a fairly good sanitary condition, although there is still room for further improvement. Some are not kept in that condition of cleanliness which is conducive to health. It is true that the nature of some of the businesses is such that cleanliness is next to impossible, but most factories can be kept clean if there is an effort to do so. Some rooms in a building are found in an excellent condition, showing that operators employed there have a desire for cleanliness, while other rooms in the same building are in a neglected, dirty condition, for which there is no reasonable excuse. It is true that dirt is a necessity of many occupations. It is also true that it is often easily removed, and that by having this done the workers would gain in health and self-respect. I find that where proper sanitary conditions are wanting, it is mostly the fault of the operators themselves, who are careless and untidy. Sometimes, I find the employers ready to give up in despair all effort to have order and cleanliness. Employees often mis-use the best provisions made for their comfort and welfare. They destroy ruthlessly the most expensive plumbing, and litter and soil rooms uselessly. On the other hand there are places where women of refined habits, and high sense of order, carry those qualities into their working surroundings.

It has been especially gratifying to find so many forewomen in workshops with high ideals of good work, good order, and good conduct.

I notice that in almost every instance when a new building is constructed, or old buildings being repaired for mercantile or manufacturing purposes, an effort is made to comply with sanitary and other regulations of the law.

VENTILATION.

To reduce the causes of impure air, if they cannot be wholly removed, is the aim of those who have studied the question. The rooms of our large factories, generally speaking, are clean, well ventilated, well lighted. Manufacturers are aware that men and women can do more work in pure air than in foul. It has been well said that

no man can do his best unless he is physically comfortable. Excessive heat or cold, poor light, and, more than all, bad air, are positive hindrances to good work. That foul air and unclean surroundings are injurious to health, are facts to the common mind. To induce an amount of air to enter a room it is necessary to make room for it. This necessitates the removal of an equal amount of foul air. Whatever differences of opinion may exist as to the merits of the many systems for the ventilation of factories, it must be admitted that the system that can furnish and remove under perfect control a sufficient amount of air to supply fresh air, and remove foul air with regularity, independent of weather, summer and winter alike, should be the system to be adopted. It has been proved that the foul air of a room should be removed by outlets as near as possible to the place where it is produced.

I may say here that in many cases the means used for heating workrooms is a matter upon which I have often had occasion to feel dissatisfied. No heating of a room can be said to be made complete unless provision has been made for supplying it with pure air. I have gone through some of these workrooms and found doors and windows closed until the atmosphere becomes warm by the breath and bodies of the workers. I have found capes and coats worn by the employees until the room has become sufficiently aired, as they term it. If you look around those rooms you will find pieces of paper or rags stopping every ingress of air, and you rather sympathize with the workers who thus stop out the cold air. I wish I could enlarge the views of some of the employers on the subject of ventilation. I often find insufficient ventilation resulting from inefficient means of heating. This is a very difficult matter, more especially in small workshops or rooms in houses used as workshops.

MACHINERY.

I am pleased to note the fact that there has been a steady decrease in the number and severity of accidents to women and girls from machinery. No doubt there will always be accidents as long as machinery is used. No system of safeguards can be devised that will insure safety to the operators who are heedless, careless, or wilfully negligent in the presence of moving machinery. All operators should feel a sense of personal responsibility for their own safety, and in no other way can it be secured. The dangerous practice, which many young girls indulge in, of wearing flowing hair, or long braids, I have tried hard to overcome, but not always with success.

SEATS FOR WOMEN.

Regarding the law requiring that employers of females shall provide seats for their use, I have given a good deal of attention to this matter, and find very few mercantile establishments violating this section of the law. I notified the firms, and they immediately complied with the law; whether the employees are allowed to use their seats is another question. While I have received statements from others than employees themselves, I have not found an employee who would say that she was deprived of the use of the seat at such times as she could consistently use it. Usually, I find employers more than willing to provide all needful accommodation. Now and then there is an inconsiderate employer. One of these exceptional men declared he would dismiss all the women he employed rather than put in seats; that he had work enough to keep them busy without leaving them any time for sitting; that there was no room for seats behind the counter, and that his girls did not want seats. To all of these objections, but one reply was made,—the law required it, and as long as he continued to employ women he must provide seats. In two weeks the law was complied with.

The saleswomen in the dry goods store in this respect are perhaps more unfortunate than females in the factory or workshop, for the spinner can seek a few moments' rest on the window sill or on the empty bobbin box, but the girl behind the counter must remain upright and alert, and must likewise keep her discomfort from betraying itself in her

face. The necessity of making such provision for females has led to the invention of adjustable seats which can be placed in narrow spaces, which is an improvement on former seats.

There are some things in the very small places that I find it is not always wise to press too hardly, for where the number of females is small, and where no considerable inconvenience is likely to arise, as it would mean the discharge of the females by the employers rather than that they should be put to any great expense or trouble. However, I have secured some valuable alterations and additions, both in respect to sanitary arrangements and other matters.

WOMEN'S WORK.

The question has often been asked: "In what occupations are women employed?"

Work of woman is divided among a large and ever-increasing number of occupations. Indeed so generally are women scattered in greater or less proportion throughout the different trades, professions and other pursuits, that it is easier to reckon those occupations in which no women are found than to number those in which their labor is availed of. I find them in the following manufacturing establishments:

Bed springs,	Electrotype.	Patent medicines,
Baking powder and yeast,	Envelopes,	Pins,
Barb wire,	Felt factories,	Plush,
Bird cage,	File Works,	Perfume,
Biscuit,	Flax mills,	Printing,
Blankets,	Fire works,	Rag sorting,
Bolts and nuts,	Fishing tackle,	Rattan goods,
Book binding,	Fringe and tassels,	Rope,
Boots and shoes,	Furniture,	Rubber,
Boot laces,	Furriers,	Saddlery,
Baskets,	Gloves,	Salt,
Brooms,	Hair cloth.	Shirt,
Brushes,	Hair works,	Shoddy,
Buttons,	Hats and caps,	Sauces,
Artificial flowers and feathers,	Hinge factories,	Soap,
Canned goods,	Horn comb,	Spring beds,
Carpets,	Hosiery.	Spice and coffee mills,
Carriages,	Jams, jellies, pickles,	Starch,
Chenille,	Jewellery,	Straw works,
Chemical works,	Knitting,	Suspenders,
Cider,	Laundries,	Tin stamping,
Chewing gum.	Lye works,	Bicycle tires,
Chains,	Linen, cotton, jute bags,	Tents, awnings,
Cigars,	Lithographers' works,	Tobacco factories,
Clothing,	Machine screw works,	Trunk factories,
Coffin,	Matches,	Type foundries,
Confectionery,	Matting,	Vinegar works,
Corks,	Mattress.	Wall paper;
Corsets,	Macaroni,	Watch cases,
Cotton,	Nails,	Wine bottling.
Dress steels,	Neckties,	Whip factories,
Dye works,	Oilcloth,	Window shades,
Electric machinery,	Paper bags, boxes,	Woollen factories.

Notwithstanding the great number of females now employed, it is doubtful whether in reality the factory system has materially changed the importance of women's work. Within the past generation, however, inventions have made machinery almost human, needing directions only, and little manual strength. This has opened up new and wide fields of labor for women. In many cases it has made it preferable to male labor in the production of many articles. Meanwhile it has lessened the field of what was formerly regarded as exclusively women's work. They do not spin, or make shirts, or stockings, or other articles of wearing apparel. Those articles are now factory products, and the family can buy them cheaper than they could be made at home. The daughters of the house no longer find employment in their homes. The factory offers inducements. This is not so much a matter of choice as of necessity, growing out of the displacement of hand work by machinery. She is now, in a great variety of industries, an active competitor with man. In some lines of manufacture the females outnumber the male workers. What the ultimate effect is to be is a query.

The adverse side of the question is the fact that in the fields of labor which women have entered the tendency is toward lowering the wages of men. It would seem that the remedy lies in the equalization of the compensation of both sexes for like work.

In almost every industry the working day is ten hours. The system of piece-work is becoming more generally adopted. The small pay given by the hundred or thousand, according to the different industries, stimulates the eagerness of the workers to the highest possible pitch. I have seen girls working so rapidly that I was very painfully impressed, and I have asked myself the question, how long their nervous systems could resist the strain of the excessive fatigue resulting therefrom. A shorter working day for this class of operatives seems an imperative necessity.

I have tried to keep a copy of Abstract posted in every factory, workshop and manufacturing establishment where persons are employed who are affected by the provisions of the Act.

In closing I would say, the Inspectors' work is never done, changes are always going on in factories, and the Inspectors seldom call but they find something to be remedied, the reason for which is not far to seek. The sharp competition in trade compels the manufacturers to add improved appliances in order to keep up with the times.

I have the honor to be,

Yours respectfully,

MARGARET CARLYLE,

Inspector.

ACCIDENTS REPORTED IN 1898.—WESTERN DISTRICT.

No.	Date.	Employers.	Place.	Business.	Person injured.	Age.	Particulars.
	1897.						
1	Dec. 6	Hanover Mfg. Co	Hanover	Furniture	A. Helwig		First finger of left hand cut off by rip saw.
2	" 13	Bain Wagon Co	Woodstock	Waggons	Man		Three fingers off at first joint and top of thumb cut off by jointer; lowered back bed instead of raising front.
3	" 21	Steinhoff & Gordon	Wallaceburg	Staves	Thos. Peats		Was driving horse through mill; it is thought the reins caught on counter shaft overhead, taking him around shaft.
4	" 18	Raymond Mfg. Co	Guelph	Cash registers	Thos. Robinson		Chest struck by stick thrown from circular saw.
5	" 24	Chatham Steam Laundry	Chatham		Boy		Arm caught in mangle, back rollers.
6	" 10	A. W. Brodie	Hespeler	Woolens	Annie Knischewski		Hair caught in gears from behind.
7	" 8	Massey-Harris Co	Toronto	Reapers, etc.	Thos. Davis		Nose and forehead cut by breaking of a spring while testing.
8	" 29	Menzie, Turner & Co	"	Window shades.	Wm. Gibbon	10	Parts of two fingers taken off in die press.
	1898.						
9	Jan. 26	Gurney Foundry Co., Ltd.	"	Foundry	M. D. Woods		Toe crushed: casting fell on it.
10	Sept. 24	"	"	"	Chas. Johns		Finger tip off in tin works.
11	Jan. 24	Waterous Engine Wks. Co., Ltd.	Brantford	Machinery	Daniel Fraser		First finger of right hand cut off by shear wheel and chain.
12	" 29	"	"	"	Wm. Cummings		Crane crank slipped; struck him on arm and face, knocking him to floor and injuring his spine.
13	Feb. 2	"	"	"	Wm. Tubbett		Piece flew off capping tool and struck him in the eye.
14	" 2	"	"	"	J. Galbraith		Raising boiler plates; chain broke, plates fell on foot.
15	April 1	"	"	"	M. Chisholm		First finger of right hand cut off by circular saw.
16	May 4	"	"	"	F. Rudolph		Thumb and part of a finger crushed by steam hammer.
17	" 12	"	"	"	W. Christopher		Thumb injured in gear of lathe.
18	" 19	"	"	"	J. Miller		Fingers pinched in lifting an anvil to a truck.
19	Aug. 22	"	"	"	Jno White		Ankle injured by weight falling on it.
20	Sept.	"	"	"	Jas. Furvis		Two fingers jammed between emery wheel and tool he was grinding; amputated at first joint.
21	"	"	"	"	Jno. Foley		Thumb nail pulled off in iron planer.
22	Oct.	"	"	"	Geo. Miller		Fell off ladder on to oil can, running spout into his arm.

23	Feb. 3	Victoria Wheel Works	Galt	Carriage wheels,	Jno. Tufford	Fell on a sand wheel in operation; hurt shoulder.
24	" 21	"	"	"	Boy	Arm cut by a circular saw.
25	" 18	M. B. Perrine & Co	Doon	Twine	Chas. Franey	Thumb off at first joint; in trying to pull off a gear in motion.
26	Mar. 3	"	"	"	Susan Downsworth	Arm broken in three places; spooling yarn; hank caught on shaft.
27	Nov. 29	"	"	"	Euphemia Wibby	Thumb crushed in gears, though gears were guarded.
28	Feb. 21	Anderson Furniture Co. Ltd.	Woodstock	Furniture	Samuel Drake	Second finger of left hand cut off by buzz planer.
29	July 16	"	"	"	Wm. Patterson	First finger cut off below first joint by circular saw.
30	Feb. 22	Can. Cone Coupler Carriage Co.	Palmerston	"	* Geo. Birmingham	Fell down elevator, 2 storeys; died same day.
31	Mar. 7	Wm. Gray & Sons	Chatham	Carriages	Jas. Baskerville	First and second fingers cut off by circular saw.
32	Jan. 26	Manchee, Wilson & Adamson	Toronto	Mouldings	Geo. Walker	Thumb partly cut off by circular saw.
33	Mar. 24	Masey-Harris Co. Ltd.	Brantford	Reapers, etc.	Chas. Young	Finger-joint dislocated by shears.
34	Nov. 25	"	Toronto	"	Wm. Verral	Bruised; piling castings; pile fell on him; no bones broken.
35	Dec. 10	"	"	"	Timothy Harman	Finger and part of thumb taken off under drop hammer.
36	Mar. 17	Waterloo Mfg. Co. Ltd.	Waterloo	Machiney	Fred. Menk	Right thumb cut off by buzz planer.
37	" 31	Brethaupt Bros. & Hall	Penetangne	Leather	Man	Finger end cut off in a screw conveyor.
38	April 15	McGregor, Gourlay & Co.	Galt	Machiney	Man	Arm caught in lathe; flesh torn; idle 6 days.
39	June 14	"	"	"	Adam Preston	Hand slipping while at lathe, causing injury to head and arm.
40	April	Toronto Radiator Mfg. Co	Toronto	Radiators	W. Everton	Foot burned by molten metal; idle 3 weeks.
41	July 15	"	"	"	Jas. Hamby	Nose cut by casting bursting under water pressure.
42	Aug. 10	"	"	"	Walter Day	Finger cut off at first joint; cleaning in motion.
43	April 21	A. A. Barthelmes & Co	"	Piano actions	Geo. Field	Two fingers cut by jointer; omitted to use guard.
44	Mar. 14	Parkhill Basket Co	Parkhill	Baskets, etc.	Patrick Trimby	Arm cut; fell across the saw in removing a slab.
45	April 18	"	"	"	Jas. Devers	Hand and wrist severely cut; in passing a rip table saw caught his jacket and drew hand down to it.
46	" 29	McClary Mfg. Co	London	Tins, stoves, etc.	Chas. Rush	Finger tops of left hand off by cutting press; hand was under when another man started machine.
47	Oct. 20	"	"	"	Frank Wright	Finger and thumb of left hand injured in cutting press.
48	Nov. 13	"	"	"	Jas. Holman	Little finger cut off in a cutting press; foot on treadle.
49	May 21	Taylor & Scott	Toronto	Brooms	Thos. Groves (a boy)	Hand cut by a boring machine.
50	Aug. 5	"	"	"	Wm. Henderson	Two fingers cut off by circular saw.

* Fatal

ACCIDENTS REPORTED IN 1898.—WESTERN DISTRICT.—Concluded.

No.	Date.	Employers.	Place.	Business.	Person injured.	Age.	Particulars.
51	May 18	W. Beck Mfg. Co	Penetang'ne	Lumber	*Anthony Derval		Struck by board thrown from a saw.
52	" 18	Penman Mfg. Co	Thorold	Knitted goods	Jas. Saunders		Fooling with hoist, fell down and broke his leg.
53	Aug. 7	"	"	"	Foreman finisher		Left hand lacerated in gear of rotary mill.
54	Dec. 10	"	"	"	A. Hull		Slipped on stairs; broke a rib and hurt his side.
55	May 18	Knechtel Furniture Co. Ltd.	Hanover	Furniture	John Plantz	40	Thumb and fist finger cut off by rip saw; was reaching under.
56	" 25	"	"	"	R. Arrob	15	Three fingers of right hand badly cut by band saw.
57	Dec. 23	"	"	"	Arthur Ellis	20	Second and third fingers of left hand crushed by polishing machine.
58	Mar.	National Oil Co	Petrolia	Oils	Fiddes (a foreman)		Eye lost by explosion of gas in refining house.
59	June 3	T. H. Taylor Co. Ltd.	Chatham	Woollens	Girl (weaver)		Sleeve caught in jack gears; arm bruised.
60	" 3	"	"	"	Maud Truax	19	Arm accidentally caught in small gears.
61	Aug. 26	"	"	"	Miss Fitzthomas		Finger bruised in Fallor rods of jack.
62	Nov. 14	"	"	Flour	Man		Hand caught in cylinders of pinch bolt.
63	April 25	The R. Forbes Co. Ltd.	Hespeler	Woollens	Lettie Rihnon		Head bruised by flying shuttle; idle 2 weeks.
64	May 12	"	"	"	Chris. Krengar		Eye injured by belt breaking and end striking his eye.
65	June 11	A. W. Brodie	"	"	Mrs. Muir		Right thumb jammed between shuttle guard and temple.
66	" 11	"	"	"	Annie Reaver		Little finger caught in loom gears; taken off; cleaning in motion.
97	July 27	"	"	"	E. Kannapin	16	Second and third fingers in gear of mule spools and amputated.
68	June 11	Zollern & Co	Mt. Forest	Furniture	Jas. Bready		Finger taken off by a rip saw.
69	" 11	"	"	"	Z. Wilker		Right forearm cut; fell on a buzz planer.
70	" 16	The Bertram Engine Wks. Co	Toronto	Machinery	D. Flannigan		Shin cut near the knee; in the ship yard.
71	July 18	"	"	"	Wm. Slade	16	Clothes caught in gear of an air compressor.
72	June 4	Waterloo Woollen Mfg. Co.	Waterloo	Woollens	Juna Kajatski		Finger crushed and amputated; cleaning in motion.
73	July 4	Reeves Pulley Co	Toronto	Pulleys	Fred Hole	28	Ribs broken and arm bruised by stick thrown by a saw.
74	June 25	Gold Medal Furniture Mfg. Co.	"	Upholstering	Geo. Alguine		Three fingers of left hand cut off by jointer.
75	July 12	Haack & Co.	Drayton	Fites	*Hy. Schanifhorn		Caught in a belt he was facing.
76	Aug. 4	"	"	"	*John Kembull		Struck by a fragment of a bursting wood pulley, was standing near it at the time.
77	July	London Hinge and Bolt Works.	London	Bolts and hinges	Man		Fly-wheel came off and rolled against him; knee injured.

78	"	29	McDonald Mfg. Co	Toronto	Tinware	H. A. Collins	18	Foot caught between elevator and floor.
79	Aug.	1	"	"	"	J. Lamont	18	Finger tip taken off in a stamping press.
80	"	17	"	"	"	Jas. Rutherford	17	Finger of left hand cut off in a stamping press.
81	"	31	"	"	"	Frank Dimety	17	Finger taken off in a varnishing press.
82	"	7	Can. Feather and Matress Co	"	"	*Bertie Burke	13½	Fell down an elevator shaft; said to have been fooling with another boy.
83	"	3	Anthes Mfg. Co	Berlin	Furniture	Fred. Roosback		Thumb cut by circular saw.
84	July	15	Chas. Betts	Sycamore Sdg.	Staves	*Jno. Rambeau		Boiler exploded about 8 a.m. killing four men and injuring four others; boiler was said to have been 25 years old. After operating the mill for an hour in the morning the machinery was stopped to mend a belt and to pack the man-hole; steam was accumulating and none escaping, till the pressure came too great for the old and weak boiler to stand.
85	"	15	"	"	"	*Jas. Payue		
86	"	15	"	"	"	Jos. Lee		
87	"	15	"	"	"	Lin. Steinhof		
88	"	15	"	"	"	Alvin Collison		
89	"	15	"	"	"	Alfred Shaw		
90	"	15	"	"	"	Alfred Head		
91	"	15	"	"	"			
92	Aug.	20	The Thomas Organ Co	Woodstock	Organs	Boy		Foot jammed by hoist; not serious.
93	Sept.	12	John B. Snider	Waterloo	Furniture	Alvin Gehring	15	Hand in sand-papering machine; badly torn.
94	"	17	D. W. Thompson & Co	Toronto	Coffins	Chas. B. Hyde		Thumb cut off by trimming saw.
95	"	25	Bennett Furniture Co	London	Furniture, etc.	Geo. O'Farrel	50	Two fingers cut off while removing sawdust from saw.
96	Oct.	7	"	"	"	Edgar Welbourne	18	Fingers bruised; caught between planer bed and board.
97	Sept.	27	McCormack Mfg. Co., Ltd.	"	Biscuits & confy.	D. McHaig		Four fingers torn and bruised; cleaning brake; hand slipped.
98	Nov.	17	"	"	"	Fred. Blackwood		Foot bruised; caught between elevator car and well.
99	Oct.	1	"	"	"	Geo. Turcotte		Finger cut and broken between elevator and door of ice b. x; going up with it.
100	Sept.	30	Hunter, Rose & Co	Toronto	Printing	J. W. Faulkner	18	Hand injured in a Gordon press.
101	"	15	Button & Fessand	Wingham	Chairs	*Jas. Bullard	48	Struck in abdomen by stick thrown from a saw, causing stoppage of the bowels; died on 19th
102	Oct.	5	Goderich Organ Co	Goderich	Organs	Jno. Hamilton		Three fingers of left hand cut off by buzz planer.
103	"	6	G. T. Pendrith	Toronto	Machinery	Wm. Higgins		Side cut and bruised; lathe caught his clothing.
104	"	6	Kilgour Bros	"	Paper bags	R. J. Crosbie		Foot projecting over edge of elevator platform; was crushed between it and floor.
105	Nov.	10	Oakville Basket Co	Oakville	Baskets	Man		Hand cut off in hoop machine, placed it under the knife at the wrong time.
106	"	22	Boeckh Bros. & Co	Toronto	Brushes	W. W. Thompson		Hand cut by circular saw.
107	Dec.	8	The Goldie, McCullough Co., Ltd.	Galt	Machinery	Chas. Seip	48	Testing an air hoist, cylinder dropped, catching his leg between its iron base, causing a bad fracture.
108	Nov.	9	Menzie, Turner & Co	Toronto	Window shades	Jas. Cook	17	One finger partly cut off by die press.
109	Dec.		"	"	"	Alfred Vane	22	Two fingers partly cut off by rip saw.

* Fatal.

ACCIDENTS REPORTED IN 1898—CENTRAL DISTRICT.

No.	Date.	Employers.	Place.	Person injured.	Age.	Particulars.
1	Jan. 29	Canada Screw Co	Hamilton	*John Bickle	23	Struck in the stomach with an iron bar used as a lever in forcing heading machine off the centre; fly wheel caught bar and threw it against him. Died 1st February, third day after accident.
2	Aug. 18	J. R. Booth	Ottawa	*Alex Crepu	41	Fell off loaded wagon, head crushed by wheel; killed.
3	Sept. 9	Kemp Mfg. Co.	Toronto	*James Rennie	36	Bowels injured by board thrown from a rip saw; died.
4	Dec. 6	St. Lawrence Foundry Co	"	*David Higgins	33	Fell into a tank of boiling water; died eleventh day.
5	Jan. 6	Norton Mfg. Co	Hamilton	Nicol Wetherstone	22	End of thumb smashed between dies of power press.
6	Jan. 6	Canadian Cotton Mills Co	"	Joseph Rowe	22	Middle finger of right hand caught in gear of loom; finger cut off between first and second joints.
7	"	Firstbrook Bros	Toronto	R. Welsh	18	Injured on abdomen board by thrown from circular saw.
8	" 25	Kemp Mfg. Co.	"	Richard Trimble	18	Left thumb cut off below second joint on circular saw.
9	Feb. 16	Firstbrook Bros	"	Alf. Carps	21	Thumb and first finger of left hand lacerated on rip saw.
10	" 18	B. Greening Wire Co	Hamilton	Norman Watts	16	Cut a small piece off thumb on left hand on hand shear.
11	Mich. 11	Canadian Col. Cotton Mills Co.	"	Albert Freeman	30	Second finger of left hand lacerated in picker; removing waste before picker had stopped.
12	" 21	Office Specialty Mfg Co	Newmarket	Frank C. Wright	19	Small cut on thumb in removing waste from circular saw.
13	April 1	B. Greening Wire Co.	Hamilton	Archibald Couitts	21	Great toe crushed, in rocking casting worked by a pitman.
14	" 4	Riordan Paper Mills	Merriton	John Pummer	45	Left arm lacerated and bruised, also part of right thumb, in contact with moving belt.
15	" 15	Hamilton Blast Furnace Co.	Hamilton	Wm. Burwick	26	Top of finger badly bruised by piece of ore against the side of ear, while unloading ore.
16	" 28	Wm. Hamilton Mfg Co	Peterboro'	T. Eastland	.....	While chipping steel plate a piece of chip struck him in the eye; probable loss of eye.
17	May 4	Norton Mfg. Co	Hamilton	John Pinder	14	While playing with a scoring machine at the noon hour; thumb on right hand cut severely.
18	" 9	Hamilton Blast Furnace Co.	"	Henry Deckhard	56	Molten iron flew up; right foot burned severely.
19	" 10	Gilmour & Co	Trenton	Levi Parent	45	While wiping oil from pulley, left hand amputated at wrist.
20	" 13	Polson Iron Works	Toronto	J. Kennedy	30	While cutting a piece of plate, holding it with his hands, it slipped; forefinger cut to the bone.
21	" 27	Gilmour & Co	Canoe Lake	George Burgoyne	46	Cut over right eye by knot thrown from circular saw.
22	" 28	McLaughlin Carriage Co	Oshawa	Richard Bassett	45	Two centre fingers of left hand cut off on jointer planer.
23	June 1	Gilmour & Co	Canoe Lake	Stephen Duquette	.....	Right foot caught in feed friction; using foot instead of stick; calf of leg lacerated and cut to the bone.
24	" 2	Merrittion Cotton Co.	Merrittion	Frank Turner	14	Cut on cheek while trying to put a comb band on cards.
25	" 3	Mickle, Dymont & Co	Gravenhurst	Thomas Stoner	17	Right arm nearly severed; in contact with a circular saw.
26	" 7	The Rathbun Co.	Lindsay	Thomas Train	.....	Third finger of right hand badly cut on shingle jointer.
27	" 9	The Rathbun Co.	Deseronto	Daniel McDonald	.....	Finger cut; threw hand on circular saw in falling.
28	" 13	The Fedlar Roofing Co	Oshawa	— Bakely	.....	Several fingers on left hand jammed in press.

29	"	16	Ontario Malleable Iron Co.	"	"	Wm. Jacobi	21	A portion of right leg and foot burned by molten iron
30	"	16	McLaughlin Carriage Co.	"	Thomas Hawkes		40	End of third finger of left hand cut off on jointer planer; four days of work.
31	"	22	Peter Hamilton Mfg. Co.	Peterboro'	Herbert Mowry		14	Thumb badly lacerated on buzz planer.
32	"	25	Kemp Mfg. Co.	Toronto	Sadie Anderson		17	While looking down elevator shaft, counter-balance pinned her jaw on edge of door.
33	"	25	Mickle Dymont & Co.	Gravenhurst	Wesley Hill		28	First finger and rest of hand badly cut on circular saw.
34	"	25	Rathbun Co.	Deseronto	James Haggadore		18	Pushed on circular saw by slab on live rollers; cut on back of right arm.
35	July	4	Trent Valley Woollen Co.	Campbellford	James Gibson		30	First finger on right hand taken off at second joint, in gear.
36	"	7	W. C. Edwards Co.	Ottawa	Wm. Barnes		19	Right foot caught in belt on small shaft; foot amputated.
37	"	11	The Riordan Paper Mills	Merriton	Ernest Bradley		15	Slipped, and left hand and arm bruised and slightly burned; hand caught between a roll and drying cylinder.
38	"	12	Firstbrook Bros.	Toronto	James Vernon		15	Fingers of right hand slightly injured on circular saw.
39	"	14	H. A. Lozier & Co.	Toronto June	J. Adams		15	Fingers lacerated while operating grinding machine.
40	"	16	Merriton Cotton Co.	Merriton	Mary Byron		38	Right arm badly bruised, wrist sprained; cleaning spinning frame while in motion.
41	"	23	J. R. Booth	Ottawa	Alfred Blockburn		50	Left arm lacerated and toe taken off; struck by saw carriage.
42	"	23	J. R. Booth	"	Hellard Sojala		25	Fell against lever of setter on saw carriage; chest hurt.
43	"	25	Rathbun Co.	Deseronto	W. B. Parkes		58	Jaw bone broken, hurt on elevator.
44	"	27	W. C. Edwards Co.	Ottawa	Thomas Windrose		18	Three first fingers of right hand cut off on rip saw.
45	Aug.	5	Riordan Paper Mills	Merriton	George McGrath		18	End of thumb crushed off in roll of ruling machine.
46	"	7	Riordan Paper Mills	"	David Coughill		18	Slipped against a roll; right knee hurt.
47	"	10	Kemp Mfg. Co.	Toronto	Fre J. Moilan		13½	Part of first finger on right hand cut off on power press.
48	"	10	Art Goods Mfg. Co.	Toronto June	Wm. Thompson		50	Started a compo. machine in absence of regular attendant; left arm bruised and lacerated in gear.
49	"	17	Riordan Paper Mills	Merriton	John O'Neil		31	Stick of pulp wood fell from carriers on right foot; two toes broken.
50	"	24	H. A. Lozier & Co.	Toronto June	Edward Kronsberget		22	While putting belt on pulley in motion, belt mounter struck him on chest; injured internally.
51	Sept.	7	Norton Mfg. Co.	Hamilton	Albert Goodall		31	Nail of middle finger and half of the nail of third finger of right hand torn off between the dies of power press.
52	Sept.	8	Riordan Paper Mills	Merriton	Wm. Ness		31	Ends of two fingers of right hand crushed in calender rolls; bones not injured.
53	"	9	Wilkinson Plow Works.	Toronto June	A. Bassett		50	Three fingers of left hand cut off on rip saw.
54	"	15	Wilkinson Plow Works.	"	Joseph Fugh		14	Right arm and testicles injured on polishing wheel.
55	"	15	Merriton Cotton Co.	Merriton	David Dundas		20	Ends of first and middle finger of left hand lacerated while removing waste from screen under cylinder of a card.
56	"	17	Norton Mfg. Co.	Hamilton	Richard Fuard		25	While passing power press his foot struck the treadle; third finger of left hand severely lacerated.
57	"	17	J. D. Shier	Bracebridge	John Butler		30	While carrying a circular saw, fell against it; left arm severely lacerated.
58	"	17	Capital Planing Mill Co.	Ottawa	L. Lemieux		46	Thumb of right hand lacerated on shaper.
59	"	20	Peter Hamilton Mfg. Co.	Peterboro'	Edward Carr		25	Likely to lose sight of left eye by molten iron flying up, owing to damp skimmer.
60	Oct.	3	Kemp Mfg. Co.	Toronto	William Gillespie		22	Point of first finger of right hand cut off in power press.
61	"	6	"	"	John Stewart		18	End of little finger crushed while wheeling iron on truck.
62	"	17	"	"	Willett Seney		18	Foot crushed while lifting plate for a double crank press.

* Fatal.

ACCIDENTS REPORTED IN 1898.—CENTRAL DISTRICT.—*Continued.*

No.	Date.	Employers.	Place.	Person injured.	Age.	Particulars.
63	Oct. 13	Hamilton Blast Furnace Co	Hamilton	Thomas Moore	40	Finger crushed by piece of ore rolling down.
64	" 13	McKinnon Dashboard Co	St. Catharines	Ed. Longley	24	Joint of fore finger of right hand cut off on power press.
65	" 20	Riordan Paper Mills	Merriton	Jas es Woodward	63	Head badly cut and slight concussion of the brain by stick of pulp wood from conveyer falling on him.
66	" 26	Kemp Mfg. Co	Toronto	Samuel Hicks	21	Thumb on left hand bruised while operating foot press.
67	" 28	Merriton Cotton Co	Merriton	John McLellan	18	Hand slightly bruised, caught in folding machine.
68	Nov. 2	Rathbun Co	Deseronto	George Stewart	23	Second finger of right hand taken off at first joint; hand jerked against saw while removing knot.
69	" 10	Norton Mfg. Co	Hamilton	James McSwain	18	End of index finger of left hand badly squeezed between bumper of power press.
70	" 11	Joseph Simpson's Sons	Toronto	Wm. Boyington	.....	While shovelling snow on top of dye house, was caught on a revolving shaft; injured internally and bruised.
71	" 19	Firstbrook Bros	"	Wm. Haines	18	First finger of right hand cut off at first joint on rip saw.
72	" 15	Hawthorne Woollen Co	Carleton Place	Robert McLaren	14	Left arm caught and torn in finishing card.
73	" 22	Firstbrook Bros	Toronto	Robert Murdoch	18	Finger of left hand caught and crushed in grover roller.
74	" 28	H. A. Lozier & Co	Toronto June	A. J. Perry	42	Third finger of right hand lacerated; caught between apron and spindle of emery wheel.
75	Nov. 30	Office Specialty Co	Newmarket	Dio. Dawkins	19	End of thumb of left hand lacerated on circular saw.
76	" 30	Peter Hamilton Mfg Co	Peterboro'	Robert Drury	40	Thumb and two first fingers bruised in gear of crane.
77	" 30	Merriton Cotton Co	Merriton	Jacob Eberhardt	63	Ran point of screwdriver in palm of left hand; not serious.
78	Dec 1	W. P. Phant	Hastings	John T. Schenck	.....	All the fingers of right hand taken off on jointing planer.
79	" 2	H. A. Lozier & Co	Toronto June	Walter Hisson	22	Third finger of right hand lacerated between lever and tool of screw machine.
80	" 11	Ottawa Car Co	Ottawa	D. Lafleur	.....	First finger and thumb of left hand cut off on circular saw.
81	" 13	Firstbrook Bros	Toronto	George Kingdton	18	Part of thumb, first and second fingers of left hand cut off on buzz planer.

APPENDIX I.

EXTRACT FROM THE REPORT OF THE COMMITTEE APPOINTED TO INQUIRE INTO CERTAIN DANGEROUS TRADES.

[BRITISH HOUSE OF COMMONS.]

ELECTRICAL GENERATING WORKS.

GENERAL REMARKS.

6. Electrical generating stations may be conveniently divided into three classes, those which supply current (*a*) at low pressure, (*b*) at high pressure, and (*c*) at extra high pressure :—

- (*a*) Currents at low pressure distributed from generating stations are invariably direct, *i.e.*, they flow in one direction only.
- (*b*) Currents at high pressure are either direct or alternating. Alternating currents change their direction a great number of times in a second. A hundred complete alternations a second is very usual.
- (*c*) At present there is in Great Britain only one station at extra high pressure and this supplies alternating currents, but either direct or alternating current might be produced at extra high pressure.

7. When the current is direct and of low pressure, the cables from the generating station have to carry the whole current which passes through the houses, and in order that the resistance of the passage of so great a current may not be serious, very large cables, involving the use of a large quantity of copper, are essential. In scattered districts, especially, the amount of copper necessary would be so great that electric supply under this system could hardly be carried on economically.

8. A method of enabling consumers to be supplied with current greater than that passing through the mains which leave the generating stations is provided where high pressure currents, whether direct or alternating, are employed ; thus the essential advantage of high pressure systems, *viz.*, the reduction of the amount of copper in the mains, is attained. This is effected by means of motor generators or of transformers, which are appliances for converting a small current at high pressure to a large current at low pressure, or *vice versa*. According to the proportions of the two sets of windings upon them, the current in the consumers' circuit, which it may be stated is not metallically connected with the high pressure mains, is caused to have any desired relation to that passing through the mains. Where, as is usual, the current on the consumers' circuit is ten or twenty times as great as that conducted by the high pressure mains, the pressure at which it flows is in the same proportion less, and thus it is that, while 100 or 200 volts conveyed into a house is safe, so far as accidental contacts are concerned, a dangerous high pressure is necessary in the mains and generating stations.

Expressing the same thing somewhat differently, the generating stations have to supply the consumer with electrical power; this is measured any where on the route by the product of the current and the electric pressure.* The power in the mains is a certain product made up of a high pressure and a small current, whereas on the consumers' or low pressure, side the same power (neglecting the small loss in the motor generator or transformer) is made up of a greater current and a low pressure. Thus the consumer is supplied with electrical power at a safe pressure, while the producer can transfer it from the station by a comparatively thin cable, because a small current only is necessary if the pressure is high, and the losses in the cable depend upon the current, and not upon the electrical power supplied.

9. Owing to the fact that in this country there is only station on this system, the Committee do not feel that any generalization could safely or fairly be deduced from a single example; and beyond stating that the danger of 10,000 volts is out of all proportion greater than that of five times 2,000 volts, they do not propose at present to deal with this branch of the subject. But they understand that projects are on foot for employing 10,000 volts, or some other number constituting extra high pressure, in connection with electric railways. When these schemes have assumed more definite shape the Committee feel that Special Rules will have to be drafted and issued for the protection of the work-people employed.

THE PROCESS.

10. The primary source of power in this country is almost invariably the combustion of coal, oil or gas, which is converted into mechanical power by steam, oil, or gas engines. Any of these may be employed to drive machines which are known as dynamos, and which convert the mechanical into electrical power. The electric current is directed into the proper channels at the switchboard, and conveyed along the conducting cables or mains into the district served by the generating station.

11. There are many forms of dynamo, but in every case there must be a field-magnet and an armature, either of which is made to revolve. In consequence of the rotation of one or other, currents are induced in the armature. If the armature is stationary these may be led away by cables directly connected to the terminals of the armature. In this case the current is necessarily alternating. If, on the other hand, it is the armature which revolves, direct connection between the armature terminals and the cables is impossible. For this reason sliding contact between fixed collectors or brushes and conducting rings or commutator strips upon the shaft of the armature is required to convey the current to the cables. Where conducting rings are used the current is necessarily alternating; but where the direct current is intended the commutator strips are employed.

12. The switchboard is a structure which enables the electrician in charge to make any of the changes in the electrical connections between the dynamos, cables, fuses, and measuring instruments, which the ordinary working of the station may require.

13. Cables of various forms and make are employed to conduct the electric current from the generating stations to all parts of the district served. In those cases where the cable is conducting at low pressure, as in low pressure systems, and in the low pressure branches of high pressure systems, no danger is to be expected; to these cables, therefore, no further reference need be made.

High pressure cables generally consist of stranded copper wire. When they are to be laid underground, this is invariably coated with insulating material. The two conductors necessary for the passage of the current from and to the station may consist of two distinct insulated cables, but what are known as concentric mains enable a single cable to serve the double purpose. Conductors which are fixed overhead, and which are usually known as aerial cables, are often bare over their entire length. This is more likely to be the case within the curtilage of a factory, where the Board of Trade rules do not apply.

* All reference to the intricacies of phase difference in the alternating system is purposely avoided.

14. The motor generators or transformers, the purpose of which has been indicated above (para. 8), are placed in "substations." These may be rooms of considerable size; chambers in which there is space for one or two people in addition to the transformers, or mere boxes practically filled by the transformer. Transformers are sometimes placed in cellars or other parts of the consumers' premises.

The motor generator is a combination of motor driven by the energy of the current in the high pressure mains and a dynamo generating the low pressure current of the local circuit. If the current is alternating, branches from the mains are connected to the primaries of transformers which supply the local circuits. In both cases fuses are inserted in the circuits in various places proportioned to the heaviest current that can properly be allowed to pass, so that if by accident an excessive current should arise, the fuse will melt and disconnect the circuit.

15. In addition to the ordinary transformer and motor generator, already referred to, there are contrivances of many different kinds known as "rotary converters," "boosters," etc., by means of which a current may be converted from direct to alternating, or the reverse, or may have its pressure altered or adjusted in any direction.

16. Either alternating or direct currents are supplied from generating stations to private consumers for domestic and general use. For arc lighting also, and for driving motors, either a direct or alternating current may be employed. The same is true where the current is used for electric heating, electric welding, and electric furnaces.

For charging secondary batteries, however, and for various electrolytic manufacturing operations, direct currents are used, and ordinarily at low pressure.

THE DANGERS OF WORKING.

17. The dangers inherent in steam and other motive machinery, being well known and provided against by the general law relating to factories, do not require consideration in this report.

18. In the handling and preparing of plates for storage batteries, risks of lead poisoning exist; but the workers are already protected by the special rules framed for "Electric Accumulator Works;" beyond this no special dangers to health have been noticed. There is, however, a risk in the use of these accumulators in consequence of the evolution of an explosive mixture of gases when the plates are overcharged. Where the ventilation is very imperfect, a quantity of gas may accumulate sufficient to take fire or explode on contact with a spark or flame.

19. The danger peculiar to electrical generating works is the liability to shock, which is often fatal if, by accident, anyone comes into contact with the conductors when charged to a high pressure. The contact need neither be very perfect nor direct; provided two parts of the body are made to touch conducting materials which themselves differ in pressure by 1,000 volts or more, or even by much less if the contact with the flesh is very good, a dangerous and possibly fatal shock will result. The ground, especially if damp, is sufficient for one of the contacts, damp leather boots affording no protection, so that anyone standing on the ground or on metallic or damp wood flooring cannot safely touch a single object charged to a dangerous pressure. If, however, he should be standing upon a dry indiarubber mat, which is an excellent non-conductor, he will come to no harm on touching any number of dangerously charged bodies which are at the same electrical pressure; but if he should simultaneously touch, even through his clothes, two bodies which differ from one another in pressure by about 1,000 volts, the actual amount depending largely on the perfection of the contact, or if, while safely touching highly charged metal, he should touch or pass by hand any conducting article to someone else who is not also insulated, then a fatal shock may follow.

20. The metal which is highly charged and which would be liable to be touched, if not properly protected, is to be found in the dynamo machines, the switchboard and its metal connections, the high pressure mains, and the transformers, and, in the case of series arc lighting, in the lamps themselves.

21. In alternate current dynamos with fixed armature and rotating field magnet, the terminals of the machine to which the cables are connected are the only parts which could well be left exposed, and these are so easily boxed in that the most negligent user would hardly leave them unprotected. On the other hand, when the field-magnet is fixed and the armature revolves, there are on the shaft two contact rings which form the terminals of the armature, and the terminals of the machine are connected with these by two brushes. In this case the terminals of the machine can just as readily be protected as in the last, but there are in addition the contact rings and brushes. These may require attention either at starting or during the running of the machine, or they may be a source of danger if the attendant, in oiling with a metal can or working with ordinary tools, brings any of these accidentally in contact with the highly charged metal.

In the case of direct current dynamos, the commutator and brushes take the part of the contact rings and brushes in the alternature with moving armature, and what has been said before applies equally to both.

22. The switchboard should be easily and quickly accessible on the front, where all the ordinary operations of connecting and disconnecting the various dynamo machines and cables are effected. The back should be inaccessible, except to those skilled persons who have the right and means of entry. Here each cable end and conductor from the dynamo is connected to its appropriate block of metal. These blocks are generally exposed for convenience of repair and alteration. None of the every-day work of the switchboard is carried out here, so that the risk of accident can only exist when alterations are being carried out within reach of highly charged metal.

There is no necessity for any metal directly connected with the high pressure mains or dynamos to be exposed on the front or working face of the switchboard to accidental contact.

23. High pressure main conductors may be erected as overhead wires, but are almost universally laid underground.

Bare overhead high pressure conductors may lead to accident in case of breakage or by swinging into contact with buildings, etc., under the action of the wind, or by earthing at the points of support in consequence of damage to the insulators; or they may become sources of danger to persons who unintentionally put themselves in contact with them by a ladder or other means. High pressure overhead wires, even if insulated over their entire length, can never be considered as entirely free from risk.

In underground cables the insulation which is employed to prevent loss of current will, when it is perfect, *i.e.*, undamaged, amply protect anyone touching it from any dangerous pressure from the metal within, but an injury which would not be sufficient to be detected in ordinary working might nevertheless allow of the escape of sufficient current to produce instantaneous death. As the cables are liable to injury when being drawn in, workmen who handle mains charged to high pressure with their bare hands may be injured or killed.

Concentric mains are often employed with a central high pressure wire or cable, and an external group of wires insulated from the central cable. The outer wires are in general insulated again, and the whole is often enclosed in a lead tube. If the outer conductor is efficiently connected with earth at the generating works, no part of it will attain a dangerous pressure, and the risk of handling such a cable is greatly reduced.

24. Transformers and the metal cases in which they may be enclosed, if not efficiently connected to earth, are a source of danger in the event of "running to frame," or of any deficiency in the insulation of the high-pressure wire or cable. If there is any moderate insulation leakage the earth-connected case cannot become charged; or if the insulation fail, and the high-pressure main becomes connected with the casing, the extra strong current resulting will blow the fuse in the transformer or its chamber, or at the central station, and disconnect the faulty part from the circuit. So long as no highly-charged metal is exposed, and the conditions indicated are correctly fulfilled, it would appear almost impossible for accidents to occur to men at work outside the transformer casing.

25. By efficient earthing is meant metallic connection to some good conductor which is in contact with damp soil over a considerable area. An earth cannot be considered efficient unless, under all weather conditions, in case of accidental contact with metal charged to high pressure, it will secure the passage of a current sufficient to blow the fuse employed for the protection of that metal. The best earth often available is the system of cast-iron pipes, through which the cables pass, provided all the joints are metallic. A mere bolt or rod in brickwork, concrete, or in the ground, especially when that is liable to become dry, would be useless as an efficient earth in the case of metallic connection with high-pressure supply; but it might be sufficient to discharge the very small leakage that would occur with sound and, ordinarily speaking, perfect insulation. Transformers become warm in working, and thus the chambers, especially if well ventilated, are apt to become very dry.

26. Arc lights, when supplied with current from a central station, are usually arranged in series, *i.e.*, the same current is sent through a number of lamps. As an arc lamp requires an electrical pressure of from 40 to 50 volts, dangerous pressure becomes necessary when several lamps are arranged in series, for the electrical pressure is the sum of the electrical pressures of all the lamps separately. A workman who is himself insulated cannot obtain a serious shock by handling even the two terminals of any single arc light, but if he is not insulated, and he touches any charged part of an arc light, a current may pass through his body; this may or may not be dangerous in itself, but, in consequence of the fact that these lamps can in many cases only be reached by means of a ladder, a shock, harmless in itself, may cause a man to lose his hold and be seriously injured. If the whole electrical system is perfectly insulated, the shock depends upon the accidental pressure of the particular lamp touched; if, however, the insulation of the system, at any part which differs greatly in pressure from the lamp touched, be defective, then a dangerous shock is certain to follow.

27. As illustrating the dangers incidental to the use of electricity it has been stated that in addition to minor accidents, of which we hear little or nothing, 14 deaths have been reported since 1892. The effects of the passage of an electric current through the human body are extremely uncertain and variable. Whilst the pressure required to cause death has in America been fixed at 1,500 volts, it is clear from the evidence laid before the Committee that a smaller pressure may prove fatal, provided circumstances are favorable to the passage of the current through the body. People are known to have been accidentally brought into contact with higher pressures than 1,500 volts without any serious consequences following. These cases illustrate the extreme uncertainty and variableness indicated above. If a person receives a powerful electric shock his muscles are thrown into such a state of tetanic rigidity that it is impossible for him to relax his grasp or extricate himself from his dangerous position. Such a shock may simply stun the person who receives it, rendering him unconscious for a brief period; it may, however, burn him, charring the surface of the body and inflicting deep wounds which heal with difficulty, or, as is usual where the pressure has been great and the conditions of resistance slight, it may cause sudden death. It is believed that strong electric currents may cause death in one of two ways (*a*) either by arresting the breathing, or (*b*) by suddenly stopping the heart. With the view of ascertaining the cause of death, and of devising and testing means for resuscitation, Dr. Oliver undertook a series of experiments upon animals, most of them under the influence of an æsthetic. Although in nearly all instances death was due to arrest of the heart's action, it is impossible to say upon which organ the current primarily exerted its harmful influence. In attempting to resuscitate them, the one method which above all others gave the most satisfactory results was *artificial respiration*. By this means some of the animals recovered even though the heart had ceased beating for a period, in one instance for as long as 13 minutes. Artificial respiration, therefore, should in all cases of apparent death from electric shock be resorted to at once, and persisted in for a considerable time, for recovery is known to have taken place where it has been practised for fully half an hour. Since this is the best treatment at our command, and every minute passed after finding a body in a perilous position without any attempt at restoration diminishes the chance of recovery, it is desirable not only that workers in

electrical generating and distributing stations should be made thoroughly cognizant of the dangers incidental to their calling, but should receive practical instruction in methods of treating suspended animation.

The rules subjoined (see page 46), furnished by the Editors of the "Electrical Review," supply the required information. The Committee desire to express to the editors the gratitude which they feel for this courtesy and for other assistance.

RECOMMENDATIONS.

28. For the purposes of these regulations a station where the direct current generated is at 700 volts or any high number, or where the alternating current generated is at 350 volts or any higher number, shall be considered a "high pressure station," and all metal conductors, whether they be on the dynamos, the switchboard, the mains, or any other part of the station carrying a current at a pressure equal to or greater than that above-mentioned shall be deemed to be at "high pressure."

The Committee recommend that the following regulations should be applied in all those cases mentioned in paragraph 1 where electricity at high pressure is in use. It is not intended that they should be applied to low pressure systems.

(i) The frames and bed-plates of all generating machines shall be efficiently connected to earth.

(ii) The rails fencing dynamos, or other generating machines, shall be made of wood or other non-conducting material.

(iii.) All terminals, collecting brushes, main connectors, parts of dynamos, motors or other appliances, to which neither Regulation No. (vi.) nor No. (vii.) applies, shall be so placed, covered or fenced with non-conducting materials, that no person can touch accidentally, either with his body, clothing, or any conducting tool, two parts differing from each other by an amount which constitutes a high pressure. This rule is to be read in connection with No. (iv).

(iv.) The floors of all places where it would be possible to make connection with metal at high pressure shall be covered with an insulating mat of suitable material and kept in a state of efficient insulation.

(v.) The material used for wiping or cleaning the commutator strips or collector rings of dynamos, motors or rotary converters of any form shall be applied by means of an insulating handle.

(vi.) In switchrooms and on the front of switchboards, the main switches, main fuses, main terminals, omnibus bars, and all other metallic parts shall be insulated or arranged in such manner as to render it impossible for any person by accident or inadvertence to touch them.

(vii.) The backs of all switchboards shall be kept closed, except for the purpose of alterations or repairs. When such work has to be carried on either at the back or at the front of switchboards, the following regulations shall apply:—

a. No person except a skilled electrician, or a workman under his personal and immediate supervision, shall be employed when any part is at high pressure.

b. No extensive or serious repairs shall be executed upon metal which is at high pressure.

c. Where the alterations or repairs are not of an extensive or serious character all metallic parts at high pressure shall be covered with an insulating cap or protected by some form of insulating covering, only one part, or several at the same pressure, to be exposed at any one time.

(viii.) All switchboards erected after the application of these Rules shall have, at the back, a clear space of at least four feet. This space shall not be utilised as a store room or lumber room, or be obstructed in any manner.

(ix.) Any person at work upon a cable or portion of the mains under high pressure shall wear indiarubber gloves on both hands.

(x.) All aerial high pressure conductors in factories or workshops shall either be insulated over their entire length, and supported at such frequent intervals, that, in the event of breakage, they shall not come within reach at places where persons are liable to pass or to be employed, or shall be so placed and arranged as to comply with the requirements relating to such wires in streets enjoined by the Board of Trade

(xi.) The gloves shall be supplied by the occupier, and it shall be the duty of the manager to see that they are in a proper state of repair, and are worn by the workpeople.

(xii.) No examinations, repairs, or alterations necessitating the handling of mains, wires, machines, or other apparatus, shall be carried on except in cases of urgent necessity while such parts are under high pressure, and all such work shall be done under the personal supervision of an electrical engineer or competent manager or foreman.

(xiii.) Where operations are being conducted upon mains from which the current has been cut off, the switch shall be locked and precautions taken that it shall not be unlocked except by the person in charge of the station on his being satisfied that the danger is at an end.

(xiv.) Every vessel used for lubricating purposes shall be so constructed that it cannot act as a conductor between the hand and anything touched.

(xv.) Metal transformer boxes shall be efficiently connected to earth, and so constructed that in the event of "running to frame" the earth connection will not be broken by the removal of the fuse box or any other part of the box.

(xvi.) Transformer cases, iron ladders, and all permanent metallic parts contained within the transformer chamber, and not forming part of the electric circuit, shall be metallically connected together.

(xvii.) All holes in transformer cases, through which high pressure conductors pass, shall be lined or bushed with suitable and effective non-conducting material.

(xviii.) All high pressure connections within a transformer chamber shall be so protected with insulating material that it shall be impossible to touch them.

(xix.) Switches which can be conveniently operated from the outside for cutting off both the high and low pressure connections of the transformers shall be fitted in all transformer chambers erected after the application of these Rules, and in all existing chambers, unless it is proved to the satisfaction of Her Majesty's Chief Inspector of Factories that such an arrangement would be attended by special difficulty.

(xx.) Each post or support where series arc lighting is employed shall be provided with means for completely disconnecting the arc lamps from the mains, without disturbing the action of the other lamps.

(xxi.) All persons engaged in electrical works shall be made fully aware of the dangerous parts of the machinery, cables, and their connections, and shall be practically instructed in methods of artificial respiration—that known as Sylvester's is both simple and efficacious. Rules for artificial respiration, and for the restoration of persons apparently killed or injured, shall at all times be kept affixed in the station. All persons engaged in the works shall thoroughly understand these rules and be capable of putting them into practice. In the event of a person being rendered unconscious by an electric shock, artificial respiration shall, on the careful removal of the body from its electrical contact, be at once resorted to, and a qualified medical man immediately summoned.

(xxii.) All accidents occurring in generating stations or transformer chambers shall be notified according to the provisions of section 18 of the Factory and Workshop Act, 1895.

29. The Committee feel that any set of Special Rules framed for the safety of the workpeople in this industry must imperfectly realize their object if a specially qualified person be not retained to advise the Secretary of State or Her Majesty's Chief Inspector of Factories on matters requiring technical knowledge of electricity.

THE "ELECTRICAL REVIEW'S" SUGGESTIONS FOR DEALING WITH APPARENT DEATH FROM ELECTRIC SHOCK.

The following suggestions are based on the recommendations of Drs. D'Arsonval, Goelet, Hedley, and Lewis Jones for the treatment of persons apparently killed by electricity :—

APPARENT DEATH. In many cases where persons receive electric shocks, death is only apparent, and animation may be restored if efforts at resuscitation are not too long delayed.

METHOD OF RESUSCITATION. The method of resuscitation resorted to should be that known as artificial respiration.

Efforts to induce respiration should not be relaxed until breathing is fully and normally restored, or until it is absolutely certain that life is extinct.



FIRST POSITION.

DANGER OF SEIZING THE VICTIM'S BODY. If the accident has been due to contact with a "live" or faulty cable, the injured person may retain a grasp of it. When the injured person retains his hold of the cable it is dangerous to seize any part of him, even the parts of the body covered by clothes

Perspiration may make the clothes damp and render them good conductors, especially under the armpits, which would be the part most likely to be seized.

In such a case the person who goes to the assistance of the victim should protect his hands, whenever possible, with india rubber gloves.

Where gloves are not available, a thick layer of dry rags might be used to cover the hands, or a coat or any other garment, if made into a thick pad, might be used when pulling the victim away from the cable or machinery.

* To show the importance of following this injunction it is only necessary to mention an accident recorded in the "Electrical Review." While a man was cleaning an electric street lamp, at Boston, he received a shock and was killed, his body being suspended from the wires. A man who endeavoured to remove the body came in contact with it, and was dashed to the ground with such violence that he died shortly afterwards.

SEND FOR A MEDICAL MAN AT ONCE. No time should be lost in sending for a qualified medical man, but in the meantime the following efforts should be made to restore animation.

HOW TO PLACE THE BODY. The body should be at once placed upon the back and the clothes loosened. A roll made of a coat or anything else convenient should then be placed under the shoulders. It should be sufficiently large to prop up the spine so that the head drops backward (*see illustration*).

POSITION OF THE OPERATOR. The operator should kneel behind the subject's head, in the manner shown in the illustrations. He should then grasp the elbows and draw them well over the head, so as to bring them almost together above it, and hold them there for two or three seconds. Then he should carry them down to the sides and front of the chest, firmly compressing the chest by throwing his weight upon the arms.

After two or three seconds the arms should be again carried above the head, and the operation repeated at the rate of about 16 times per minute.



SECOND POSITION.

ADDITIONAL MEANS OF RESUSCITATION. In addition to the foregoing, if there be an assistant at hand, the tongue should be seized by a cloth or handkerchief and drawn forcibly out during the act of inspiration, *i e*, when the arms are extended above the head; when the arms are brought down, the tongue should be allowed to recede. This operation should be repeated with the same regularity as the movement of the arms.

STIMULANTS TO BE AVOIDED. According to Dr. Hedley the efforts of the bystanders to pour stimulants down the throat of the victim should be resisted until a medical man arrives.

NECESSITY OF DELIBERATION. It should be borne in mind that to be successful the foregoing operations should be carried out deliberately and methodically. There should be no haste, but the operations should be executed vigorously.

In many respects the treatment suggested above is similar to the method of treating apparent death by drowning.

APPENDIX II

EXPLOSIONS CAUSED BY COMMONLY OCCURRING SUBSTANCES.

BY CHARLES E. MUNROE.

On the sixth of November last the country was startled by learning that an explosion had occurred at the Capitol at Washington which had caused extensive damage to that magnificent and historic building, and which, with the ensuing fire, had destroyed some, and jeopardized more, of the valuable archives with which the building was stored. Occurrences of this kind have long had a particular interest for me, and I have found them to recur with great frequency and to cause extensive damage and destruction not only to property but to person. Notwithstanding, therefore, that much that I have to say is well known, it appears to be not inopportune to address you on the subject of "Explosions Caused by Commonly Occurring Substances," omitting entirely from consideration the substances commonly known and used as explosives, and it is possible that this repetition may serve to some extent in preventing these accidents, by leading to greater precautions being taken.

From the observations on the phenomena accompanying the combustion of solids, it is well understood that the speed of the combustion is greatly accelerated by comminuting the combustible and mixing it intimately with the supporter of combustion, and it is also well recognized that many explosions are due solely to very rapid combustion; yet it is only within comparatively recent times, and since manufacturing operations have come to be carried on upon a very considerable scale, that we have had it strongly demonstrated that ordinary combustible solids might, when finely divided and mixed with air, give rise, on ignition, to most violent and disastrous explosions, and it seems especially notable that the first well-demonstrated cases of this kind should have arisen from the apparently harmless operations attending the grinding of grain, and the more particularly as flour is not looked upon as a very readily combustible substance when compared with other commonly used solids.

Among the many instances of this kind which we have now on record we will cite that which occurred on the 9th of July, 1872,¹ when the inhabitants of Glasgow were startled by the report of an explosion which was heard to a considerable distance, and which was found to have occurred in some very extensive flour-mills, the front and back walls of which were blown out, while the interior was reduced to ruins, and speedily enveloped in flame which destroyed the remaining buildings. Several persons were killed, and a number of others were severely burned, or injured by the fall of masonry.

On May 2, 1878, a similar disaster occurred in the enormous flour-mills in Minneapolis, but in this case it was observed that the explosion which originated in the Washburn mill was communicated by flame successively to the Diamond mill and to the Humbolt mill. As a consequence of these explosions the walls of these mills, which were solid masonry, six feet thick at the base, were razed to the ground, sheets of corrugated iron roofing, two by six feet in area, were projected to a distance of more than two miles, a wooden building fifty feet from the centre of the explosion was blown open, stout plate glass windows one-fourth of a mile away were torn out bodily, sash and all, and projected

NOTE.—This valuable paper on explosions is reprinted here by the kind permission of the author. Prof. Munroe is head of the Chemistry Department of the Columbian University, Washington, D.C., and delivered this address in December, 1898, before the American Chemical Society, of which he was President. He has for many years been a recognized authority on this subject. This address is reprinted from *The Journal of the American Chemical Society*, Vol. XXI., No. 4, April, 1899. It appeared also in *Science*, March 10, 1899.

¹Abel: Roy. Inst., March 12, 1875.

into the street, an immense volume of smoke and flame was projected to an estimated height of 600 to 800 feet, and finally persons by the edge of the adjacent river observed a displacement of water, producing a wave estimated to be eighteen inches high, before they heard the report of the explosion. The concurrent testimony of persons employed in the mills, and of the experts who were called proved the absence in each case of any of the so-called explosive substances on the premises, and that the boilers had not burst, and from the facts brought out the origin was conclusively traced to the striking of fire by a pair of millstones, through the stopping of the "feed," and the consequent friction of their bare surfaces against each other, with the result that the mixture of air and fine flour-dust surrounding the millstones became ignited.

This ignition alone would not suffice to develop any violent explosive effects; for similar ignitions which have been not infrequently observed in small mills, where they have been caused by the stones "striking fire" or by the incautious use of a burning lamp near the millstones, or the meal-spout attached to them, have not been attended by any serious results. But in an extensive mill, where many pairs of stones may be at work at one time, each pair has a conduit attached, which leads to a common receptacle called an exhaust-box; into this the mixture of air and very fine flour-dust which surrounds the millstones, is drawn by means of an exhaust fan, which is sometimes aided by a system of air-blowers. The fine flour is allowed to deposit partially in this chamber or exhaust-box, and the air then passes into a second chamber, called a stive room, where a further quantity of dust is deposited. It follows that when the mill is at work, these chambers and the channels are all filled with an inflammable mixture of the finest flour-dust and air, and that the ignition of any portion of the inflammable mixture will result in the exceedingly rapid spread of the flame throughout the whole, and will thus develop an explosion. The violence of such explosions depends much upon the details of construction of the exhaust boxes and stive rooms, and upon the dimensions of the channels of communication; it must obviously be regulated by the volume of the inflammable mixture through which the fire rapidly spreads, and upon the degree of confinement. In the case of the catastrophe at Glasgow, the production of a blaze at a pair of millstones was observed to be followed by a crackling noise as the flame spread rapidly through the conduits leading to the exhaust-box upon an upper floor, and a loud report from that direction was almost immediately heard. Professors Rankine and Macadam, who carefully investigated the cause of this accident, report¹ that other flour mill explosions, which they had inquired into, had been observed to have been attended by a similar succession of phenomena to those noticed upon this occasion. The bursting open of the exhaust-box by a similar though less violent explosion, attended by injury of workmen, the blowing out of windows and loosening of tiles, appears to have taken place on a previous occasion at these particular mills. In the last and most disastrous accident, however, the more violent explosion appears to have been followed by others, the flame having spread with great rapidity to distant parts of the mills through the many channels of communication in which the air was charged with inflammable dust, resulting from the cleansing and sifting operations carried on in different parts of the building, and rapidly diffused through the air by the shock and blast of the first explosion.

In the experimental investigation of the Minneapolis explosion by Professor S. F. Peckham² it was shown that compacted masses of flour which had become heated and charred, ignited readily and smouldered but were inflamed only with considerable difficulty, though the atmosphere of the conduit from the stones, through which a strong current of air is being continually drawn and which is filled with a dense cloud of very fine particles of flour heated to a maximum temperature of 140° F., could be inflamed with comparative ease. White-hot wires and glowing charcoal were incapable of producing this inflammation but only burned the particles in actual contact with them, and the only means by which the mixture, in the best proportions, could be made to burn explosively was by contact with flame.

¹ Abel: Roy. Inst., March 12, 1875.

² *Am. J. Sci.*, 16, (3), 301-306 (1878).

The danger in the process was found to arise from the friction of the stones, heating the last portion of the grist that remained between them to a temperature sufficient to char it, or to convert it into a substance resembling tinder, which would readily ignite from a spark produced from the stones striking together. Although this burning mass could not inflame the dust-laden atmosphere, it did ignite wood, which a strong draught of air readily forced into a blaze. Under the conditions described, with a draught of air passing through the dry stones strong enough to convey the pellets of smouldering tinder into the wooden conductor, an explosion was a necessary consequence.

Knowing the chemical composition of flour, we may calculate approximately the mechanical work which a given mass of flour can perform, and find that the contents of an ordinary sack, when mixed with 4,000 cubic feet of air, will generate force enough to throw 2,500 ton mass to a height of 100 feet. If we now consider the many tons of flour there must have been in a mill such as the Washburn "A," where as much as 1,000 pounds of dust per day were collected from a single pipe, we can readily comprehend how such great destruction could be wrought.

It is to be regretted that the experts, who duly considered all the circumstances, concluded that while by suitable precautions the frequency of these flour-mill explosions may be diminished, and the extent of the damage inflicted may be very much restricted, the nature of the operations is such that these explosions cannot be altogether prevented.

Since mixtures of wheat dust with air have proved to be so explosive we should naturally expect that analogous solids would form similar explosive mixtures with air, and as a fact we have recorded explosions of oatmeal in the Oliver mill in Chicago, of starch in a New York candy factory,¹ of rice in rice mills, of malt dust in breweries, of spice dust in spice mills, together with numerous instances of sawdust explosions, the more prominent being those which occurred in the Pullman car shops and at Geldowsky's furniture factory in Cambridge, Mass., still we would scarcely look for an explosion from such a cause in a soap factory. Yet a violent explosion occurred in 1890, in a Providence soap-works in which the finely powdered saponaceous substance known by the trade name of "soapine" was being prepared and the coroner held in his finding that the explosion through which such injury was inflicted was caused by the ignition of soapine dust. Experiments made in this connection showed that this substance will explode under certain conditions with more violence than flour, and apparently with the production of more heat.

The most unusual case of dust explosions, however, with which we have met, was that of a finely powdered metallic zinc which occurred at the Bethlehem Zinc Works in 1854. At that time Col. Wetherill devised a plan for utilizing the "blue powder" which is the finely divided metallic zinc that is deposited in the prolongation of the condenser by swedging the powder into blocks and piling these blocks one above another in a furnace where they were melted down and run into spelter. The workman in charge sought to facilitate the process by feeding the uncompressed powder directly into the furnace, but on trying to do so an explosion followed the loading of the first shovelful and with such violence that the workman was blown from the top of the furnace, and the blade of the shovel was driven into the roof of the building.

In pharmacy and the arts substances have been made either knowingly or accidentally from mixtures of combustible substances and supporters of combustion which have given rise to accidents such as those from the parlor match and the chlorate troches,² or from sodium peroxide and sodium bisulphite mixtures as in the Whitecross Street explosion,³ and the latter class of mixtures are to be particularly dreaded as the chemical action and subsequent explosion may be incited not only by contact with fire but also by contact with water. Cavazzi⁴ points out that mixtures of sodium nitrate and hypophosphite

¹ L. W. Peck: "Explosions from Combustible Dusts," *Popular Science Monthly*, 14, 159-166 (1878).

² *U. S. Naval Institute*, 11, 774 (1885).

³ *J. Soc. Chem. Ind.*, 13, 198-200 (1894).

⁴ *Gas. chim. ital.* (1886).

detonate on heating, while Violette¹ proposed to use a mixture of sodium nitrate and acetate as a substitute for gunpowder, and these are but a few among the many explosive mixtures which may be compounded.

Still another source of danger arises from the production and use in laboratories, and frequently in common life, of chemical substances which are explosive *per se* though not generally recognised as such, and we have records of accidents, among others from bleaching-powder,² from erythryl nitrate, which has lately come into use in the treatment of Angina Pectoris,³ from ammonium nitrate,⁴ and there are many others such as the organic nitrates,⁵ nitroso compounds,⁶ diazo bodies,⁷ diamides,⁸ hydrazoic acid and its derivatives,⁹ hydroxylamines,¹⁰ chlorates,¹¹ carbonyl compounds,¹² permanganates,¹³ peroxides,¹⁴ chlorides,¹⁵ and iodides,¹⁶ occurring in the laboratories and used to a varying extent in the arts, that are so unstable as to give rise to serious accidents if incautiously handled. We may notice that so well known a compound as the cupric ammonium nitrate, a body which is often formed in the course of analysis, was deemed by Nobel to possess such value as an explosive that he took out patents for its use in blasting.

The liquid state conduces more particularly to accidents taking place, since bodies in this state are liable to escape from their receptacles and to be found in unexpected places. If combustible, when mingled with the atmosphere or when saturating oxidizing agents, they burn with extreme rapidity and produce very violent effects. When such liquids give off vapors at the ordinary temperatures, or those prevailing during use, the danger is very materially increased as such vapors are more vagrant and, through diffusion, readily mingle with the atmosphere. These properties are especially characteristic of many of the products obtained from coal-tar and from petroleum; bodies whose cheapness, abundance and special adaptability have led to their extended use for domestic heating and lighting, and for many purposes in the arts, but which have, because of this widespread use and in consequence of their possessing the properties named, been the cause of an enormous number of casualties. Dr. O. F. Chandler¹⁷ showed that much of the danger attending the use of these oils in lamps could be avoided by the elimination of the paraffins of low boiling-points, and though not the pioneer, yet largely through his active efforts and the agitation which followed them, this principle has properly become widely embodied in legislation. This view as to the source of danger was confirmed by the experiments of Newbury and Cutter,¹⁸ who found that all the paraffins below nonane formed explosive mixtures with air at the ordinary temperatures, notwithstanding that the boiling-point of octane is 124° O., and that the limit of a safe oil, as fixed by the "flashing test" defined by the New York State statutes, is reached only in decane. Yet this last-named compound formed a violently explosive mixture at the legal flashing temperature if but a small quantity of the liquid was placed in the copper testing vessel, thus indicating that entire

¹ Berthelot: Sur la force de la poudre (3), 2, 315.

² Rept. H. M. Insp. Exp., p. 47 (1897).

³ Rep. H. M. Insp. Exp., p. 50 (1898).

⁴ J. Chem. Soc., 683 (1882).

⁵ Compt. rend., 109, 92-95 (1889).

⁶ Compt. rend., 108, 857-859 (1889).

⁷ Ann. Chem. (Leibig), 121, 257 (1860).

⁸ J. prakt. Chem., 30, 27, 107.

⁹ Ber. d. chem. Ges., 23, 3023 (1890).

¹⁰ Rec. d. trav. Chim. Pays Bas., 10, 101 (1891), and J. Chem. Soc., 54, 425 (1888).

¹¹ Compt. rend., 105, 813 (1887).

¹² Ber. d. chem. Ges., 18, 1833 (1885).

¹³ J. Chem. Soc., 54, 250 (1888).

¹⁴ Compt. rend., 106, 100 (1888).

¹⁵ Bull. Soc. Chim., 50, 635-638.

¹⁶ J. Chem. Soc., 53, 766 (1889).

¹⁷ "Petroleum as an Illuminator," Rept. N. Y. City Board of Health for 1870.

¹⁸ Am. Chem. J., 10, 356-362 (1888).

safety is not assured in its use and that accidents might occur when it is used in lamps so constructed that the oil chamber becomes highly heated. Dewar¹ holds that the relative volatility of petroleum oil is a subject which is not sufficiently known and appreciated. By comparing the loss of weight during twenty-four hours of oils exposed in shallow vessels under similar conditions he found at 66° F., an American water-white oil of 106° flash point lost 20.4 per cent., an oil of 75° flash point lost 27.4 per cent., and a Russian oil of 85° flash-point lost twenty-eight per cent.

In observations that I have made it was very apparent that the form and material of the containing vessel are most important factors in these volatilization experiments. I have found for instance that a given volume of gasoline placed in an uncorked vial and exposed to the ordinary atmospheric conditions of a laboratory required ten weeks for complete volatilization when the same volume of the same lot of gasoline placed in an evaporating dish standing beside the bottle volatilized completely in eight hours. The rate of evaporation of the various hydrocarbons under the same conditions has been studied by Boverton Redwood.²

A menace in the use, storage, and transportation of these liquids rests in the rapidity with which their vapors diffuse through the air and form an explosive train which, reaching out to a source of ignition, flashes back with extreme rapidity through the entire train and to its point of origin. Sir Frederick Abel cited an instance of this which³ happened at the Royal College of Chemistry in 1847 when a glass vessel in which benzene was being converted into nitrobenzene broke and allowed the warm liquid to escape and flow over a large surface. Though the apartment was thirty-eight feet long, thirty feet wide, and ten feet high, and the only ignited gas-jet was at the end of the room most remote from the glass vessel, yet in a very brief space of time after the vessel broke a sheet of flame flashed from the gas jet and travelled along the upper part of the room to the point where the fluid lay scattered.

He also cites the explosion of benzoline at the mineral oil store in Exeter in 1882. The storerooms were arched caves in the side of a bank facing a canal and separated from it by a roadway about fifty feet wide. There was a standing rule forbidding any light being taken to any of these storerooms when they contained petroleum spirit, but on the day in question it was desired to remove some of the benzoline in the early morning and the foreman visited the storerooms before daylight to make ready for the work. Forgetful of the rule he carried a lighted lantern, which he placed on the ground some twenty-seven feet away from the cave, and was proceeding to open the door when he observed a strong odor of benzoline and almost immediately noticed a flash of flame proceed from the lantern to the store, and had barely time to turn to escape when an explosion took place which blew the doors and lantern across the canal and inflamed the spirits in the storerooms.

Of course the distance that these vapors will travel will be determined by the circumstances of each individual case, but in the case of the fire at the L. & N. W. R. R. Co's gas factory in February, 1897, through which the hydrocarbons in a cylinder that was being rolled across the yard about the works became ignited, the nearest source of ignition was found in the boiler fires, which were sixty feet away.⁴

Conditions such as these are more likely still to obtain when these inflammable and volatile substances are stored in enclosed spaces, such as the hold of a vessel during transportation, and they have been the cause, under these conditions, of many frightful accidents. As an example of these we have the case of the explosion on November 21st, 1888, on the petroleum laden ketch "United," at Bristol, England, through which the docks were blown up, three men killed, and several injured, the glass in the windows shattered for a radius of upwards of 300 feet, and extensive damage done by fire.

¹ Rept. H. M. Insp. Exp., 21, 55 (1897).

² "Detection of Inflammable Gas and Vapor in the Air," Frank Clowes, p. 191 (1896), London. Roy. Inst. of Great Britain, March 13, 1885.

⁴ Rept. H. M. Insp. Exp., 22, 57 (1898).

The accident was made the subject of a special report by Col. V. D. Majendie,¹ which contains the results of his investigation and the experiments by Dr. Dupié and Mr. Boverton Redwood, from which it appears that the material on the "United" was "deodorized naphtha," in forty-two gallon barrels; that the average annual leakage on petroleum oil in barrels amounted, in 1874, to eight per cent., and on petroleum spirit to double this quantity, and that though there has since been a great improvement in the treatment of the barrels, it is still very large; that one volume of the liquid gives 141 volumes of vapor at ordinary temperature, having a specific gravity of 3.5 to 3.8; that one volume of the liquid will render 16,000 volumes of air inflammable, 6000 most violently explosive, 5000 strongly explosive, and 3000 scarcely explosive but combustible. The naphtha vapor alone, or when mixed with air in the best proportions, was not ignited by a shower of sparks from flint and steel, by a stream of sparks from fireworks of various kinds burning without flame, by incandescent match ends, or by incandescent platinum heated by electricity to a red heat. Even red-hot coals held over and sometimes falling upon a small quantity of the spirit spilled on a wooden floor failed usually to ignite it, and the cause in those cases in which ignition did take place in these red-hot coal experiments was uncertain, as there was a fire burning in a near-by room. Ignition was, however, certainly effected by the application of a flame or by contact with a platinum wire approaching incandescence.

The "fireworks" test makes a striking lecture experiment, especially the one devised by Mr. Redwood with "vesuvians" or incandescent cigar lighters. For this purpose he attaches two, of the glowing variety, to a wire so that the tip of one will be in contact with the base of the head of the other. The latter is lighted and when it ceases to flame and only glows, the mass is thrust into the explosive mixture, where it remains, with the combustion progressing from tip to base and base to tip without other effect until, when flame bursts from the tip of the second vesuvian, the vaporous mixture surrounding it is ignited and an explosion ensues.

Col. Majendie has properly called attention in this report to the fundamental distinctions between the danger arising in the transportation of a cargo of dynamite and one of petroleum spirits, since in the former case an explosion does not take place until fire is brought to the dynamite, while in the latter case the dangerous vapors will travel to a fire at a considerable distance and even through intervening bulkheads.

For this reason mixed cargoes, of which volatile inflammable liquids and explosives constitute a part, are particularly dangerous, as was long since shown in the explosion of the canal boat "Tilbury" in Regent Park in 1874, having on board five tons of gunpowder and four barrels of benzoline, and also having a small fire burning in the after cabin some thirty-five to forty feet from the forehold in which the petroleum was stored. Notwithstanding that the cargo was covered with tarpaulins, and that there was an intervening bulkhead, the vapors reached the fire and a most devastating explosion followed. The cargo was thus made up in spite of a similar disastrous experience from similar causes on the "Lottie Sleigh," at Liverpool, in 1864,* and neither of them have proved a sufficient warning to altogether prevent subsequent reckless disregard of all dictates of common prudence.

Yet, because of these experiences, attempts have been made in some instances where small lots of spirit were taken by vessels, to avert disaster by carrying them as deck loads, but the experience on the "Solway," which carried twenty-four barrels of this article on the main deck before the poop, shows that this does not insure security, for, meeting with heavy weather, the casks broke adrift, their vapors reached the galley or cabin fires, and the vessel, with nineteen persons, was lost.

Even where great precautions are taken to prevent accidents they not infrequently occur from inflammable substances being met with in unexpected places or being introduced surreptitiously in admixture with harmless bodies. Nowhere perhaps is more care taken

¹ Eyre and Spottiswoode, London (1889) 30 pp.

*Abel: Loc. Cit.

in this respect than on passenger steamships, and in the naval service, yet eighteen years ago a series of accidents occurred on board English ships, the cause of which was, for a time, veiled in mystery, and which, in the then existing state of feeling consequent on the dynamite outrages, aroused the gravest apprehensions.

In June, 1880, a violent explosion took place, without any warning or apparent cause, in the forepeak of the Pacific Steam Navigation Co's steamer "Coquimbo," shortly after her arrival at Valparaiso. Several plates were blown out of the bow and other structural damage was inflicted, while the ship's carpenter, who was the only person who could have thrown any light on the cause of the accident, was killed.

This explosion was followed on April 26th, 1881, by a much more serious one on the man-of-war "Doterel," (while at anchor off Sandy Point in the Straits of Magellan) through which eight officers and 135 men lost their lives and the vessel was destroyed. In May of the same year an explosion of a trifling character happened on H. M. S. "Cockatrice," in Sheerness Dockyard, while in November, one, which was sufficiently severe to kill two men, dangerously wound two more (one fatally), and injure six others, besides doing much damage to the ship, occurred on H. M. S. "Triumph," then at Coquimbo.

The first suggestion as to the real cause of these accidents was obtained in the investigation of that on the "Cockatrice," when it was developed that, just previous to the explosion, a man went into the storeroom with a naked light which he held close to a small can, that was uncorked at the time, and which contained a preparation recently introduced into the naval service (as a "drier" for use with paint) under the name of "xerotine siccativ," and that this largely consisted of a most volatile petroleum product. As it had been issued without knowledge of this fact, instructions were at once sent out by the Admiralty directing that it should be stored and treated with the same precautions as turpentine and other highly inflammable liquids or preparations; and these instructions had but recently reached the "Triumph" when the accident narrated happened to her. Inquiry here developed the fact that the explosion originated in the paint room through bringing a lantern to a compartment in which a leaky can of the siccativ had been stored, and following up this clue the explosions on the "Coquimbo" and "Doterel" were fully and definitely proved to have been due to the presence on board of this same substance, while experiments with the material showed that it was capable of producing all the destructive effects observed, except, perhaps, in the case of the "Doterel," where, from the two reports noted and the other resemblances to the Regent Park explosion, there was but little doubt that the powder magazine was also exploded.

Such accidents were not, however, confined to British vessels, for on October, 31, 1891, while the U. S. S. "Atlanta" was going to the rescue of the wrecked "Tallapoosa," an explosion occurred on the "Atlanta" which caused her immediate return to New York. I was at once ordered by the Secretary of the Navy to proceed to New York and investigate the accident.

I learned that while the "Atlanta" was laboring in a heavy sea she sprung a leak through the hawse pipes and the forward collision compartment began to fill with water; that a handy-billy was rigged to pump out the compartment; that about midnight the suction-pipe became plugged, and that on lowering a common lantern into the compartment an explosion ensued severely injuring two men, slightly injuring four others, and bulging the steel collision bulkhead. I found that the collision compartment had been used as a storeroom for paints; that among them were spar and damar varnishes and Japan dryer, each of which gave off inflammable vapors at ordinary temperatures; that the packages were sealed in a very insecure manner; and that as this compartment filled and the vessel tossed, the cans were opened and their contents churned up so as to readily form explosive mixtures with the air. I learned further that on June 15th previous a fire and explosion had taken place on board the U. S. S. "Philadelphia" in close proximity to her powder magazine, and that another had occurred on the U. S. S. "Bennington," all being evidently due to the same material.

But notwithstanding these vigorous lessons the tale continues, and on April 14, 1896,¹ a "petroleum accident" occurred on board the Cunarder S. S. "Servia" when a party of men were engaged in painting the inside of a water ballast tank. The tank, which is three feet six inches deep, was divided into sixteen compartments with eighteen inches aperture between each. The furthest compartment was being painted at the time, and it was necessary to crawl through fifteen of the small apertures to reach it. The paint used was styled patent bitumastic solution, and one of the survivors testified that it took him four or five minutes to reach the compartments, ten minutes to do the painting, and four or five minutes to return, and that he could not stoop down any longer as it made him dazed and queer in his head. All the witnesses testified that the use of the solution in confined spaces made them drunk and delirious if they remained any length of time at work. This is a well-known effect of the lighter petroleum, and it is not surprising that the solution was found to consist of coal-tar dissolved in crude oil, having a flashing-point of 45° F. Abel, and containing so much volatile matter that one gallon spread over a large surface would render forty-eight cubic feet of air inflammable.

Notwithstanding this the workmen went into this inner compartment, which was already partly covered with the freshly laid solution and containing a partly filled bucket of it, with a lighted candle. Some time having passed without hearing from him another workman went to his assistance and found the place on fire and the man burned and delirious. He was so delirious as to fight against coming out and it took an hour and a half with assistance to get him through the apertures and up the manhole, and he afterwards died in the hospital from the effects of the disaster. Even while writing this we learn from the local press that a fire preceded by an explosion, due to the use of bitumastic solution, occurred at the Central Market House, Washington, D.C., on November 16, 1898.

The notorious "Hair Dressers' Accident" of June 26, 1897, through which Mrs. Samuelson was fatally injured in London, by the ignition of a petroleum hair-wash which was being used as a shampoo, illustrates anew the manifold uses to which these hydrocarbons are being put, and it brought out strongly the belief of competent authorities like Lord Kelvin that these substances could be ignited by frictional electricity,—a theory which had been offered before in explanation of accidents in which there was no other apparent source of ignition.

The widespread distribution of these spirits in the hands of retailers, or as used for carburetters in isolated vapor lighting plants and as employed in the arts for solvents, cleansing agents, and for other purposes, has led to their accumulation, through leakage or by being discharged after use, in low places, such as cellars, cisterns, wells, sewers, and the bilges of ships, where they have remained, in some instances for long periods of time, unknown and unnoticed, their origin being completely forgotten and untraceable, until, when, in the course of events, these out-of-the-way places have been re-entered, these bodies have given rise to accidents. It is a well-known precaution of the past before entering a well or cave to test its atmosphere for carbon dioxide by means of a naked candle, but this very method of procedure has, since the introduction of petroleum, been the cause of accidents, and to be assured of security we must now remove and test the air before entering.

The extended consumption of naphtha for carburetting water-gas and the ease with which it is conveyed through pipes has resulted in the use of a system of pipe lines in our cities to carry the oil from the transportation lines or store tanks to the works. Such a line was laid in Rochester, New York, and on December 21, 1887, it gave rise to an explosion which killed three men, seriously injuring twenty, destroying three large flour-mills; tore up the streets for a considerable distance, and inflicted an estimated loss of \$250,000. This pipe line, which was made of three inch wrought iron pipe, one and one-half miles in length, had been in successful use for six years, the spirits being pumped through it every two weeks in lots of from 12,000 to 15,000 gallons each. From the Appeal Book *In re Ann Lee v. The Vacuum Oil Co.*, Rochester, 1889, we learn that the

¹ Rep. H. M. Insp. Exp., 21, (1897).

conveyance of the naphtha was complete on December 7 ; on December 8, the contractors constructing a sewer exposed a section of the pipe line for several feet, and in blasting beneath it a piece of rock struck the pipe with sufficient force to bend it up nearly nine inches at the point struck and to separate it at a joint further on underground and closely connected with a sewer ; that on the day fixed for the next delivery, December 21, the Oil Company, being unaware of the then existing conditions, pumped the full supply into the pipe, none of which reached the gas works, but on the contrary found its way, by the broken joint, into the sewers and was thus distributed over the city ; that the pumping of the oil began at 12 15 p.m. ; the odor was noticed shortly after 1 p.m. coming from a sewer at a point nearly a mile distant from the break ; the first explosion occurred at this point at 3.20 p.m. and immediately extended westward back to the break and eastward to the outlet of the sewers, tossing up manhole plates, uplifting roadways and overturning buildings ; that the explosive mixture was ignited by a fire under a steam boiler ; and that this vapor found its way from the sewer to the fire through an untrapped water-closet at a point where exhaust steam was being injected into the sewer.

At the trial, Mr. F. L. King, p. 173, stated that crude naphtha, flashing point 13° F., percolated through earth six times as fast as water at the same temperature, his several experiments being made with the temperatures varying for the liquids from 38° F. to 60° F., and for the earths from 32° F. to 60° F. Mr. George B. Selden, p. 178, found the mixture of naphtha and air in the best proportions to give, on explosion, a pressure of 140 pounds per square inch, while coal-gas and air in the best proportions gave 160 pounds per square inch, and that the ignition-point of the naphtha mixture was 950° C., while that of the coal-gas mixture was 800° C.

I have already referred to the means taken for insuring the removal of the more volatile hydrocarbons from domestic kerosene, a subject which has been very exhaustively treated by Rud. Weber¹ It has, however, been seriously stated that the lighter oils, such as benzoline or naphtha, might be rendered safe for use in lamps by adding alum, sal ammoniac, or camphor to them, and many innocent persons have suffered in consequence of their belief in the efficacy of these substances. Some years since² I tested the effect of these bodies by determining their solubility in benzoline ; the flashing-points of benzoline and commercial kerosene when treated with these bodies and when in their original state ; and also the readiness with which mixtures of the oils, in the two conditions, with air could be exploded. The results showed that alum and sal ammoniac were practically insoluble in the oils and produced no effect whatever upon them ; that the camphor was soluble, one gram of benzoline dissolving about one and five-tenths grams of camphor ; that an equal weight of camphor raised the flashing point of a kerosene 12° ; but on the other hand the vapor of this camphorated kerosene, when mixed with air, had a lower point of ignition, and hence exploded with greater readiness than the original kerosene.

What is true regarding the use, storage, and transportation of petroleum products holds for other easily volatile liquids. Prof. Thomas Graham in his report³ on the cause of the loss of the "Amazon" on January 4, 1852, pointed out clearly the danger in transporting turpentine, while the destruction of the "Livadia" of Liverpool, May 11, 1891, carrying a cargo of carbon disulphide, emphasizes the hazard attending this substance, for this heavy and very mobile liquid gives off quite rapidly, at ordinary temperatures, a vapor which is 2.64 times heavier than air, and which not only readily collects at the bottom of any space in which it is produced but flows in a stream like water.

One of the more striking characteristics of the mixture which this vapor forms with air is its low point of ignition. The tiniest spark, a cinder after it has ceased to glow, or the striking together of two pieces of iron without sparking are sufficient to determine its ignition. This property may be exhibited by plunging a glass rod heated to 231° C. (450° F.), (a temperature at which it can be touched with the bare hand), into the mixture.

¹ Dinglers poly J., 241, 277 and 383 (1881).

² Proc. A. A. A. S., 33, 174 (1885).

³ "Spontaneous Combustions and Explosions Occurring in Coal Cargoes," Thomas Graham, p. 40 (1882).

The use of ether, alcohol, acetone, and aldehyde with nitro-glycerine and gun cotton for the manufacture of smokeless powders and of the esters of solvents for pyroxylin in the making of the varnishes that are largely used in household decorations, are some of the more modern forms of hazard, while the explosions at the Hotel Endicott in New York, and at Newark, N. J., indicate what may be expected from the more extended use of liquified air and liquified acetylene.

Although Dr. John Clayton, the Dean of Kildare in the sixteenth century, effected the destructive distillation of coal and collected and burned the gas from it,¹ in was not until 1792 that William Murdock devised the means for utilizing the substance and erected a plant at Cornwall, England, with which to light his house and office, and after several years of active agitation by the energetic promoter, F. A. Winsor, that in 1810 an Act of Incorporation was obtained for the London and Westminster Gas-Light and Coke Co., and the first installation on a large scale for lighting the streets of a city and supplying the public begun, and through the ingenuity and resources of Samuel Clegg, the engineer, the devices were invented or assembled by which the practical manufacture, storage, distribution, and use was successfully accomplished.

From this source the use of gas for lighting and heating extended over the world, reaching New York in 1834, and bringing in its train comfort and cheer; increased security and added power to man so long as the substance was confined to its proper channels and used in proper devices, but carrying also the possibility of working harm if the vigilance of its keepers was relaxed and it escaped from bounds; therefore, beginning with the explosion at the limo purifier of the Peter Street Station, London, in 1814, through which Mr. Clegg was injured and two nine-inch walls thrown down, we have a vast array of explosive accidents originating in the ignition of mixtures of illuminating gas with air.

Owing to the circumstances attending some of these explosions there has arisen a vulgar opinion that illuminating gas is an explosive; in fact in a recent case² counsel cited opinions of courts deciding "gas" to be explosive; yet every chemist knows that it is not explosive *per se* and that it cannot even be made to ignite unless in contact with air or other supporter of combustion.

While we know the truth and may be able to demonstrate the fact, it is very satisfactory to be able also to cite the results of experience on a large scale. Therefore, the following from the *Jour. of Gas-lighting*, Aug. 1, 1871, may be welcome. It appears that at the bombardment of Paris the Governor of the city feared that the gas-holders of La Villette would endanger the fortifications. He was assured that there was not the smallest risk; that if a projectile penetrated a gas-holder and set fire to the gas the latter would only burn out as a jet of flame, and that there could be no such thing as an explosion since the constant pressure would effectually prevent any access of air. Shortly after, a shell pierced the holder at Ivry and lighted the gas. There was a huge jet of flame for eight minutes, the holder sank slowly, and all was over. At La Villette a shell penetrated a filled gas-holder and burst in the interior without igniting the gas. At Vaugirard another shell entered and again there was neither ignition nor explosion.

Many of the accidents from coal-gas and its congeners "water-gas," "producer gas," and "generator gas" have been due to the escape of the gasses from the interred pipes and mains from which they have reached sewers, cesspools, cellars, and other enclosed places, for though these gas conduits may be sound and tight when laid, leakage will in time be caused by the corrosive action of materials in the soil, by electrolysis, by fluctuations in temperature, by settlement in filled ground, and by seismic changes.³ The extent of this leakage from the mains in New York City was discussed in a legislative investigation some nine years ago, and while the chemist of the health department claimed that ten per cent. of the entire annual product, or 1,000,000,000 cubic feet escaped, the gas

¹ Treatise on Coal Gas, William Richards, (1877).

² *Proc. U. S. Nav. Inst.*, 22, 638 (1896).

³ Milne: *McClure's Mag.*, 11, 17-27 (1898).

companies' representatives denied that more than 100,000,000 feet were lost in each year. W. C. Holmes & Co.¹ give the allowed leakage as five per cent. and the average leakage as ten per cent. while H. Tobey in his paper on "Elusive Leakages for Mains and Services,"² which was warmly discussed by the Gas Association before which it was read, shows that the condition still exists, and he gives illustrations showing the danger consequent on leaving abandoned sewers in place.

Owing to the fact that Bunsen, Angus-Smith, Letheby, and Durand-Olaye found large quantities of methane, hydrogen sulphide, and sometimes carbon monoxide, in the gases from stagnant sewage decomposing under water, there has arisen a belief that "sewer-gas" is explosive. Simple consideration of the facts that such stagnation cannot occur in a properly constructed sewer, and that such a change does not take place in flowing sewage, is sufficient to cast doubt on the existence of such a gas. It has been completely shown by Prof. Wm. Ripley Nichols, in his "Chemical Examination of Sewer Air,"³ as the result of his own extended observations, and from the discussion of numerous data by other investigators, that sewer air differs from ordinary air only in containing a larger percentage of carbon dioxide and that "sewer air is neither inflammable nor explosive." The air of vaults and cesspools is, of course, a different thing, as the material in these may become stagnant.

It was as early as 1819 that an English patent was granted to David Gordon and Edward Heard, for compressing gas in strong copper or other vessels fitted with ingenious reducing valves for regulating its rate of emission, thirty feet of gas being compressed into a volume of one cubic foot; and gas so compressed in cylinders of two cubic feet capacity were conveyed to the houses of consumers, with which to operate an isolated plant. Sometimes the pressure was sufficient to liquefy the gas and it is interesting to note that it was in the liquid form from one of these reservoirs that Faraday discovered benzene.

Naturally the tension of the gas itself tends to rupture the receptacle and many accidents from explosions of this nature have occurred owing to defects in the cylinders, or to the exposure of the filled cylinders to unduly high temperatures, or to shocks; a recent accident that could not be explained in any other way occurred at Albany, N. Y., on December 6, 1893.⁴

With the increased demand for compressed gases of various kinds under high tensions, such as carbon dioxide, sulphur dioxide, ammonia, chlorine, nitrogen monoxide, acetylene, air, and others which are being used or introduced for commercial, scientific, or domestic purposes, there is being developed a continued improvement in the strength and homogeneity of the cylinders so that the danger from this cause is diminishing.

Although Dr. Robert Hare had invented his oxyhydrogen blowpipe in 1801⁵ yet in 1834 Gordon and Deville were granted a patent for their calcium or "lime" light. It was expected by the projectors that this form of light would replace gas, as burned from ordinary burners, for lighting streets, and it caused the holders of gas securities much anxiety, but as we are now aware the device came to be used for geodetic, scientific, and exhibition purposes only.

Where the gases stored in vessels are of an inflammable nature there is an additional risk to that due to the tension of the gas since by admixture with air or oxygen an explosion occurs on ignition. One source of these accidents arises from the diffusion of one gas back into the reservoir of another gas, but this is entirely prevented by proper regulation of the pressure and size of the orifice. Another arises from confusing the cylinders when filling them, and to prevent this the cylinders have been painted different

¹ "Instructions for the Management of Gas Works," p. 41, Lond. (1874).

² *Am. Gas-Light J.*, 64, 767 (1896).

³ Rept. Supt. of Sewers, Boston, Mass., 1879.

⁴ *Proc. U. S. Nav. Inst.*, 22, 638 (1896).

⁵ This Journal, 19, 719 (1897).

colors. Yet, as shown by the fatal accident described by W. N. Ha tley,¹ this has not prevented the deliberate interchange of the cylinders under the pressing demands of trade, and the usual casualty has followed. There'ore, he proposes that the fittings for the two classes of cylinders be made so entirely different that it will be practically impossible to charge the cylinder with the wrong gas, and in view of the probable increased use of gas in this form, as indicated by Mr. Thomas Fletcher,² the change should be made. Yet I doubt if it will be, except under compulsion of law, for I have learned in my efforts to introduce safety explosives in this country that the great majority will not secure the assurance of safety if this entails a little inconvenience and the taking of a little more pains.

A more common source of accident has come from impurities introduced in the making of the oxygen, as at Nahant, Mass., where pulverized stibnite was mistaken for pyrolusite, and mixed with the potassium chlorate. Limousin describes an accident at Cannes, in 1880, which attracted unusual attention from the factitious circumstance that the gas was being prepared for the Empress of Russia,³ and found the cause in the evolution of hydrocarbons from the rubber connecting tube by particles of heated potassium perchlorate carried into it through the turbulence of the reaction; while Prof. C. A. Young gives an account⁴ of the explosion at Princeton while filling a steel cylinder with oxygen by means of a water jacketed steam force pump, and finds the cause in oil used for lubricating the pump being sprayed into the gas cylinder so as to form an explosive mixture with the oxygen. He recommends the use of soap-suds as a lubricant in place of oil. Frankland⁵ describes a similar instance, and gives a similar explanation. Recently my attention has been called to several accidental explosions of oxy-hydrogen mixtures formed in the operation of storage batteries, the detonating gas being fired by the spark formed on breaking connections at the battery.

But of all circumstances under which explosions occur, the most awful are those which so frequently happen in mines, for if the miner escapes instant death it too often is but to die from suffocation, or worse yet, to be entombed and perish from starvation preceded perhaps by insanity.

It has long been known that fire damp found its way into coal mines, and, in 1674, Mr. Jessop communicated to the Royal Society a description of the accident met with by Mr. Michel, who penetrated into the gallery of a coal-pit in Yorkshire with a naked torch and was severely burned. It is interesting to note⁶ that, when rescued, he declared he heard no noise, though the workmen in the vicinity had been terrified by a tremendous report accompanied by a vibration of the earth. As is to be expected, from what we know of natural gas, inflammable gases are not confined to coal mines, but, as shown by B. H. Brough,⁷ they are met with in metalliferous mines and other excavations also.

The appalling nature of these catastrophes led to efforts being made to at least reduce their frequency, if not to prevent them altogether; an extended account of these being given in "Mining Accidents and their Prevention," by Sir Frederick Abel, N.Y., 1889. It was early recognized that the presence of naked light was a constant source of danger, and hence the invention of the safety lamp by Sir Humphrey Davy in 1816⁸ was hailed as a most beneficent gift of science, and this was soon followed by the lamps of George Stephenson and Dr. Olauy. When exposed but a short time in an atmosphere rich in gas, and which is moving at a low velocity, these lamps protected the miner; but if allowed to remain for some time in the gas-rich atmosphere the gauze becomes heated to the ignition point of the gas mixture burning within it. By the introduction of ventilating

¹ *Chem. News*, 59, 75 (1889).

² "On a New Commercial Application of Oxygen." *J. Soc. Chem. Ind.*, 7, 182 (1888).

³ *U.S. Nav. Inst.*, 14, 167 (1888).

⁴ *Scientific American*, p. 369, June 11, 1887.

⁵ *Am. Gas-Light J.*, 5, 289 (1864).

⁶ *Treatise on Coal Gas*, Wm. Richards, p. 4, 1877.

⁷ *School of Mines Quart.*, 12, 13-22 (1890).

⁸ *Trans. Roy. Soc.*, 106, 1.

appliances to remove the gas, the currents of air in the mainways frequently reach a velocity of between twenty and twenty-five feet, and between two airways it may rise to thirty-five feet per second. In breaking down the coal, the confined gas may rush out at a very high velocity, it being found by experiment at the Boldon Colliery that the gas may be under as great a pressure as 461 pounds to the square inch. And finally the air and gas may be set in motion at a high velocity by the firing of explosives to bring down the rock or coal, and more especially by a "blown out" shot. Under such conditions the primitive safety-lamps above described failed, but protected lamps have been invented which have resisted currents of even fifty feet per second for a brief period, though it is said that these are insecure in certain positions to which they may be tilted in practice, and that the glass cylinders are liable to fracture.

Instead of relying upon the safety-lamps for protection a better method of procedure is to test the atmosphere of workings for the presence of fire-damp before allowing the workmen to operate. Various methods have been pursued, and these are summarized in "The Detection and Measurement of Inflammable Gas and Vapor in Air," by Dr. Frank Clowes, 1896, Lond., and he there describes a very ingenious and efficient fire-damp detector which he has devised. This consists of a simple and convenient hydrogen lamp by which one can detect 0.10 per cent. of methane or 0.25 per cent. of coal-gas in the air. He attaches a small steel cylinder (weighing about fourteen ounces) charged with hydrogen under 100 atmospheres of pressure to the side of a safety lamp and leads the gas through a minute copper tube up beside the wick holder of the lamp, there being a reducing valve attached to the cylinder by which to feed the hydrogen to the lamp as desired in order to control the height of the flame.

The lamp is lighted as usual at the oil wick and covered, then when the atmosphere which it is desired to test is reached the hydrogen is turned on and ignited, the oil flame is pricked out, the hydrogen flame adjusted to a regulation height of ten mm. and the flame observed through the chimney against a black background. If an inflammable gas be present it will produce a pale blue cap about the hydrogen flame, and the height of this cap will increase with the per cent. of the gas in the atmosphere. By means of a scale on the chimney the height is measured and the per cent. determined. In his experiments Clowes obtained the following :

LIMITING EXPLOSIVE MIXTURES OF VARIOUS GASES WITH AIR.

Combustible gas used.	Percentage of gas in air.		Method of kindling.
	Lower explosive limit.	Higher explosive limit.	
Methane	5	13	Upward.
"	6	11	Downward.
Coal-gas, Nottingham	6	29	Upward.
"	9	22	Downward.
Water-gas	9	55	Upward.
Hydrogen	5	72	"
Carbon monoxide	13	75	"
Ethylene	4	22	"
Acetylene	3	82	Downward.

The lower "limit" of inflammable gas represents the minimum proportion which, when mixed with air under ordinary conditions, will burn rapidly, and will, under certain conditions, produce explosions. If the proportion of inflammable gas mixed with the air is less than this in amount, the mixture will only burn in the immediate neighborhood of the kindling flame, and will not burn throughout. If, on the other hand, the proportion of inflammable gas in the air exceeds the maximum "limit" the gas will only be kindled and burn where it is in contact with an additional supply of air.

All proportions of gas intermediate between these limits are explosive when mixed with air, consequently the chance of an explosion resulting from the presence of one of these gases in the air is the greater the more widely the "limits" are apart, since this gives rise to the possibility of a larger number of explosive mixtures being produced. Therefore, the danger of explosion is least with methane and greatest with acetylene. Methane is a safer gas, also, because it has a high temperature of and a slow rate of ignition. All of these conditions tend to lessen the number of colliery explosions. It is to be noted that mixtures that cannot be ignited when the flame is applied to their upper

surface may be fired from below, and this is the method of firing most likely to occur in coal mines. Few of the gases mentioned occur singly under conditions likely to give rise to danger. More commonly the combustible gases are present in a state of mixture, as in water-gas and in coal-gas.

In giving "limits" it is assumed that the temperature of the mixture is not above 18° C. and that the pressure does not exceed seventy-six cm., for a gaseous mixture which is not inflammable under these conditions may become inflammable under increased temperature or pressure, and also that a mixture that by ordinary tests appears unflammable, will propagate flame if a considerable volume of gas be projected into it, owing to the resulting increase in temperature and pressure. It will be observed that Clowes' detector reveals the presence of gas in proportions much below the danger-point, and gives timely warning.

The ignition of the fire-damp has been frequently caused by the gunpowder and "straws" used in blasting, for the outbursts of gas from the shaken coal and the outrush of flame and incandescent particles from the blast were often coincident. The use of electric primers and detonators remedied entirely the evils following the use of straws and naked fuse, and the employment of the high explosives gave greater immunity by reducing the frequency of the blasts. Greater security still has followed the use of the flameless explosives made from nitro-substitution compounds, or dynamites in which crystalline salts, like sodium carbonate and alum, containing a large amount of water of crystallization, are incorporated in the mass, or water cartridges, in which the explosive in the bore holes is placed in a water-bag or surrounded by moss, or other porous substances, saturated with water.

The occurrence of these mining accidents has caused the authorities grave concern, and several of the European governments, notably Prussia, France, and England, have appointed many commissions, some temporary and others continuous, to investigate the reasons for the accidents and the methods of prevention. Many of the most prominent chemists of these countries have been called to serve upon the commissions, and their reports have proved not only useful in the solution of the problem in hand but have been valuable contributions to chemical science. One of the more recent consequences of their deliberations is the establishment at Woolwich, England, of a station for testing all explosives offered for use in coal mines, and hereafter no explosives but those which successfully pass these tests can be used, and then only in the manner minutely described in governmental authorization.¹

The closer study of the phenomena of explosions in gases, consequent on these investigations, has developed many interesting facts. Bunsen found that when mixtures of hydrogen and oxygen, and of carbon monoxide and oxygen in equivalent proportions were inflamed the union went on by fits and starts, and that the velocity of propagation of the reaction, through narrow orifices, was thirty-four meters per second in the hydrogen-oxygen mixture, and but one meter per second in the carbon monoxide-oxygen mixture.² Mallard tested various mixtures of methane and air, and coal-gas and air, in the same way finding the velocity of combustion to rapidly diminish as the proportion of inert gases present increased and obtaining a maximum speed in the case of eight volumes of air to one volume of marsh-gas of 0.56 meter per second.³

Berthelot, using tubes of forty meters in length and five millimeters in diameter, obtained velocities of 2810 meters per second for hydrogen-oxygen, 1089 for carbon monoxide-oxygen and 2287 for methane-oxygen,⁴ and found that the reaction could be propagated in three different ways. First, by combustion, as observed by Bunsen, in which the heat evolved is being continually lost through radiation and conduction, and in which consequently the pressure is exerted by the layer of burning molecules on their adjacent molecules and hence their velocity of translation tends constantly toward a minimum. Second, by detonation in which the heat evolved, the pressure produced by

¹ Rep. Com. to inquire into the History of Explosives for use in Coal Mines, Lond., 1897.

² *Ann. chim. phys.*, (4) 14, 449.

³ *Ann. de Mines*, 8, (1871).

⁴ *Sur la force de la poudre*, 1, 153.

the reacting molecules on contiguous molecules, and the velocity of translation of the explosive reaction all tend toward the maximum. And finally, an intermediate stage all three being marked by distinct waves. Von Oettinger and von Gernet,¹ have by a very ingenious arrangement, succeeded in photographing, first, a fundamental one, which they style Berthelot's wave; second, more or less parallel secondary waves, whose existence they explain on Bunsen's hypothesis of the reflex action of waves due to successive explosions produced by the electric spark, and which they style Bunsen's waves; and third, polygonal waves of smaller amplitude. They obtained a velocity of 2800 meters per second, which is of the same magnitude as those obtained by Berthelot.

Berthelot and Vieille's experiments show that when an explosion occurs in a gaseous mixture a number of ignited molecules are projected forward with a velocity corresponding with the maximum temperature produced by the chemical combination. The impact of these molecules causes the ignition of the adjacent particles, and the rate of progression of the combustion is thus dependent upon the activity of the chemical action.

Mallard and Le Châtelier find that the rate of propagation of flame through an inflammable gaseous mixture is affected not only by the temperature and size of the igniting flame, but also by the mechanical agitation or disturbance of the mixture itself. These results are not surprising when it is considered that for the spread of combustion in an inflammable gaseous mixture it is necessary that the temperature of the combustion should be sufficient to ignite the unignited portion.

Dr. W. H. Birchmore² has devised an apparatus for firing gaseous mixtures which shows many of these phenomena. He uses two large bulbs connected by a tube of determined dimension for his explosion chamber and a large tin-foil condenser for igniting the mixture, and he finds the phenomena to be different from those observed in tubes ignited in the ordinary way. The reaction takes place more promptly and sharply, and when using hydrogen and air in variable amount not only is some of the oxygen ozonized but hydrogen dioxide is produced with the water of the reaction.

When using acetylene, with sufficient air to consume it theoretically, some of the carbon is separated out in the solid form although free oxygen was found in the residues, and it was not until he had reached eight times the volume of air required by the theory that he got the theoretical amount of carbon dioxide.

He also describes a form of experiment which very cleverly illustrates the successive phenomena occurring in the acetylene explosion at Paris. The minimum volume of an inflammable gas which forms an explosive mixture with air is very considerably reduced if fine dust is present in the air. Buddle directed attention some ninety years ago in an account of the Wallsend Colliery explosion, to the destructive effect produced by the ignited coal dust at a distance from the point of first explosion. Robert Bald, in 1828, pointed out³ that the blast of flame from a fire-damp explosion might ignite the coal dust on the floor of the pit. Faraday and Lyell, in their report on the Haswell Colliery explosion of September, 1844,⁴ demonstrated that coal dust may be instrumental in greatly extending and in increasing the disastrous effects of fire-damp explosions. Abel⁵ has shown that the presence of finely divided incombustible mineral matter in air containing less than two per cent. of fire-damp causes the latter to become explosive on ignition, and Galloway has proved that a mixture of air containing less than one per cent. of fire-damp can be made to explode when charged with finely divided coal dust. I have applied this observation of the effect of the dust in facilitating explosions to lecture experiments with inflammable gaseous mixtures.

The explosion at the Capitol on November 6th was confined to that portion of the building known as the supreme court section, and which joins the senate wing to the central structure. In the center of this section is a dome which is rarely noticed as it is completely overshadowed by the central dome of the Capitol. This dome is supported in the subbasement on piers, while all about these piers are brick vaults and arches of varying heights, carrying the many partition walls and floors above them, and these, with

¹ *Ann. der Phys.*

² *Am. Gas-Light J.*, 67, 563-565 (1897).

³ *Ed. Phil. J.*, 5, 101 (1828).

⁴ *Inst. C. E. Tracts*, Vol. 284.

⁵ *Accidents in Mines, Proc. Inst. Civ. Eng.*, (1858).

^{*} *Proc. U. S. Nav. Inst.* 12, 429 (1886).

those radiating from under the big dome and the connecting passages, form a perfect labyrinth. The complexity is increased by several of the spaces having been enclosed with brick walls so as to carry steam-heating coils and for other purposes. A large part of the wall space had been fitted with shelving and these were filled to overflowing with pamphlets. One space was used as an engine room from which to operate a Sturtevant blower that fed air over the coils. This engine was provided with a woven guard screen to protect passers-by made from five-sixteenths inch wrought iron rods, riveted on each edge into two wrought iron bars, each of which was seven-eighths inch wide by seven-sixteenths inch thick. Directly opposite this screen and leading south, was a low narrow passage that opened into one of the largest and highest of the vaults, in which was stowed, in the open spaces behind two supporting walls or piers, the ash from the wood fires which were burned in the rooms above. These hickory ash-pits, as they were styled, were south of and directly in line with the passage leading toward the iron screen. This series of compartments were on the extreme west of the sub-basement. A few of the exterior compartments of the sub-basement received a very little daylight but all the rest was wholly dependent on artificial light and several gas-jets were kept constantly lighted. In the center of the sub-basement, under the dome, was a large gas-meter connected to a four inch main and having on its outlet end a 200-light glycerine gas-governor. This meter had not been in use for some time and the inlet valve was closed but the outlet valve was opened, and it was discovered afterwards that this outlet pipe was also connected with a live four inch main. The explosion occurred about 5:15 p.m. and its effects were observed over 47,000 cubic feet of the basement and upward quite to the dome. By the explosion the brick arches, covered with earth and then with heavy stone pavement slabs, were torn up, brick partition and supporting walls were overthrown, stout locked doors on the upper floors were torn open and there was a general wrecking of all the lighter structural parts. Observation of the lay of the wreckage showed conclusively that it radiated in all directions from a point about the gas-meter and that the most violent effects were in general at the points most distant from this center. The most violent effect of all was on the west where the heavy granite screen wall, forming the facade of the building, was displaced by one and one half inches and the stout wire protecting screen about the engine was forced into a depth of two feet from the original plane for an area of three feet in diameter, and many of the stout rods were ruptured. Searching examination showed that no explosive or other explosive-forming material than illuminating gas could have been present; that for thirty minutes prior to the explosion there was for some reason a gas pressure of twice the normal; that, under an excessive pressure, gas would flow through the governor; and that this could furnish sufficient gas to do the work accomplished.

The gas had a specific gravity of 0.601 and as it escaped it flowed through the devious passages and compartments filling first the pockets with mixtures of various proportions and settling lower and lower until the stratum reached down to the level of the burning gas-jets where it was fired. These were near the meter where, of course, the gas would be richest. Here was the region of combustion. As the tongue of flame rushed under the low archways and through the passageways to the higher vaults beyond it produced a violent disturbance of the atmosphere, thoroughly commingling the gas and air and throwing a mass of inflamed gas into their midst thus producing a greatly accelerated combustion and explosion. When this tongue of flame burst into the compartment containing the hickory ash this dust was also intimately commingled with the gas-laden atmosphere and here was produced the most violent of all the effects manifested; for the granite screen wall that was displaced was on the right side of the hickory ash-pits and the stout wire screen that was perforated was directly in front of them and at the end of the low and narrow passage leading from the vault containing these pits; and further, the most violent effects produced on the upper floors, quite to the top of the building, were about the spiral staircase, leading from the compartment containing the wire screen and which was but a continuation, through the low narrow passage, of the compartment containing the hickory ash.

REPORT

OF THE

INSPECTOR OF LEGAL OFFICES

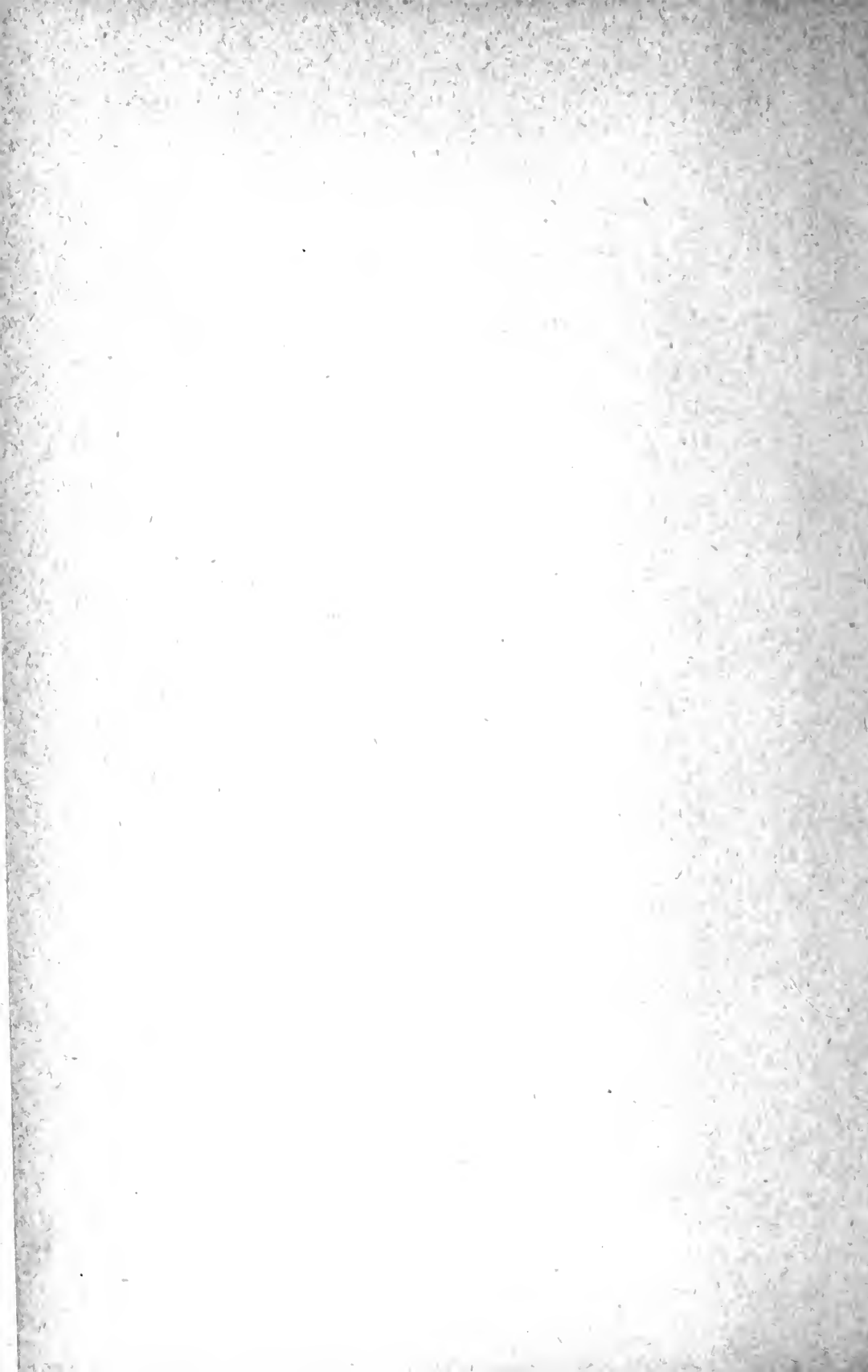
ONTARIO

1898.

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1899.



SIXTEENTH ANNUAL REPORT

OF THE

INSPECTOR OF LEGAL OFFICES.

To the Honourable SIR OLIVER MOWAT, K.C.M.G., *Lieutenant-Governor of the Province of Ontario* :—

SIR,—I have the honour to present the sixteenth annual report of the Inspector of Legal Offices for the Province of Ontario, upon the affairs and condition of the administrative and judicial offices under my inspection for the year ending the 31st December 31st, 1898.

During the year the following officers were appointed :

Sheriffs.—George Augustus Dana, of the Town of Brockville, Esquire, to be Sheriff of the United Counties of Leeds and Grenville, in the room and stead of James Smart, Esquire, resigned, gazetted 25th October.

Local Masters.—His Honour Judge Barron became Local Master of the High Court for the County of Perth on the resignation of John E. Harding, Esquire, appointed Junior Judge of the County of Victoria.

District Attorney and Clerk of the Peace.—Walter Lockwood Haight, of the Town of Parry Sound, Esquire, to be District Attorney and Clerk of the Peace in and for the Provisional Judicial District of Parry Sound, gazetted 5th March.

Local Registrars, etc.—George McGill Farwell, of Sault Ste. Marie, Esquire, to be Local Registrar of the High Court, Clerk in the District Court and Registrar of the Surrogate Court in and for the Provisional Judicial District of Algoma, in the room and stead of T. H. Murray, Esquire, resigned, gazetted 5th March. John Thomas Hewitt, of the City of Brantford, Esquire, to be Local Registrar of the High Court, Clerk of the County Court and Registrar of the Surrogate Court in and for the County of Brant, in the room and stead of Walter Boswell Rubidge, Esquire, resigned, gazetted 30th March.

Police Magistrates.—John Thomas James of the Village of Bridgburg, in the County of Welland, Esquire, to be Police Magistrate in and for said Village, without salary, gazetted 12th February. Edward Burns, of the Village of Elora, in the County of Wellington, Esquire, to be Police Magistrate in and for said Village, without salary, gazetted 2nd July. William Bruce Wilkinson, of the Village of Waterford, in the County of Norfolk, Esquire, to be Police Magistrate in and for said Village, without salary, gazetted 16th July. Daniel Davis, of the Town of Cornwall, in the County of Stormont, Esquire, to be Police Magistrate in and for the said Town of Cornwall, in the room and stead of Angus Bethune, Esquire, deceased, gazetted 27th August. Arthur Edward Connell, of the Village of Iroquois, in the County of Dundas, Esquire, to be Police Magistrate in and for the said Village of Iroquois, without salary, during the time public works are carried on in the vicinity of that Village, gazetted 15th October. Redford Kimmerly, of the Town of Dresden, in the County of Kent, Esquire, to be Police Magistrate in and for the said Town of Dresden, without salary, in the room and stead of John Chapple, Esquire, deceased, gazetted 31st December.

SHERIFF'S OFFICES.

The business of the Sheriffs' offices has been most satisfactorily conducted during the past year. Less complaint has been made to me than in any previous year. This is particularly gratifying in view of greatly diminished income which most of them are now securing from their offices. I have been able to adjust without trouble any complaints that have been made. Returns of executions, and payment over of moneys made thereunder, have been promptly made. The entries in their books are more fully made than heretofore, so that it is now the rule that the books show fully all the steps that have been taken under the executions in their hands. The civil business done in the sheriffs' offices continues to fall off and the incomes of many of them are very small compared with the importance and dignity of the office. In many of the counties the sheriff is not able to have a deputy, or a regular bailiff.

In Appendix A I have set out in tabulated form the statistical returns made by the sheriffs for the year 1898.

LOCAL MASTERS.

The business done in offices of the Local Masters still continues to fall off. In many of the counties the business has greatly declined. There have been no complaints during the past year of undue prolongation of references.

In Appendix B I have set out in tabulated form the statistical returns of the business in these offices for the year 1898.

LOCAL REGISTRARS, DEPUTY REGISTRARS, DEPUTY CLERKS OF THE CROWN AND COUNTY COURT CLERKS.

The new rules of practice which went into force in the beginning of last year are now being better understood and the practice is becoming more settled. I have, however, had a good deal of correspondence with the officers in regard to questions of doubt in the practice, and have thus been enabled to secure a uniformity upon many of the questions that are constantly arising. In order to make my directions in this respect more widely known, I have furnished the more important of them to the President of the County Court Clerks' Association and they have been embodied in his report, a copy of which has been furnished to each of the officers.

In my report last year I drew attention of the officers to the necessity of paying immediately after each Court of Assize the amount received by them for the Reporter's Fund and sending the proper return to the Accountant's office. This report should be sent whether or not any fees have been received. Many of the officers, however, do not yet appreciate the importance of promptness in this respect. The returns of judgments to the Central Office should also be promptly made at the proper times. When there are no judgments to be returned the return must be sent stating the fact. I have had to write a number of letters in regard to these matters during the year, I trust I may be saved this unnecessary trouble in future by the officers making these returns regularly at the proper times.

I find that the officers generally have overlooked the importance of Rule 556, and have not complied with it. The Judges have hitherto passed over these omissions, but now that the rule has been in force for some time, there is no excuse for its non-observance. I therefore draw particular attention to the necessity for strict compliance with this Rule in future. I think this intimation may be sufficient to save parties from delays in the hearing of their motions, and the officers themselves from the annoyance of being found negligent of their

duties. I would suggest a list in the Form No. 209 should be made in each case where exhibits are filed, and during the progress of the trial as each exhibit is put in, it would be numbered or marked and entered on the list in its proper order. The entries must, of course, also be made in the Docket.

Appendix C is a return of all business transacted in the offices of the Local Registrars, Deputy Registrars and Deputy Clerks of the Crown for the year ending 31st December, and Appendix D is a tabulated return of the business done in the County Court Clerks' offices for the same period.

SURROGATE REGISTRARS.

In these offices the work has been generally well done during the year. In three of the offices I found that Probates and Letters of Administration had been issued without the necessary law stamps having been put on the proceedings; these I caused immediately to be put on and cancelled them under authority of the statute. I have impressed on these officers the absolute necessity of proper stamps being affixed before the letters are dated or issued.

I was of opinion that in addition to the fees payable under R.S.O. Cap. 203, sec. 155, s-s. 4, the ordinary fees to the Crown in such cases were also payable, and I directed a number of the officers to that effect. The question was however submitted to the Chancellor and he has given his opinion that no fees are payable to the Crown in cases under this section. The fees therefore to be charged are those mentioned in the Statute only, to be divided in the same proportion as the fees in small estates are divided under the Surrogate Courts Act.

The practice of charging a fee of \$1.00 for a special attendance of the Judge on the orders for grant of probate and letters of administration has become very general. I have therefore drawn special attention to the matter in the following circular letter which I sent to each of the Judges and Registrars:—

RE SURROGATE COURT.

DEAR SIR,—The practice of charging a fee of \$1.00 for the Judge, as for a "Special Attendance," on the granting of every order for probate and administration, has become very general. I beg therefore to draw attention to the judgment of Sir Adam Wilson in the case of *Re Dallas* and the Registrar of the Surrogate Court of the County of Perth, 29 U.C.Q.B. 482, from which the following is an extract:—

"The Judge is entitled to a fee of \$2.00 for the grant, and to 50 cents for his order for it, but I think he is not entitled to the fee of \$1.00 for a special attendance on making it. A special attendance may perhaps properly be charged under Sec. 30, when a special order is made by the Judge for administration to be granted before the Registrar has received the certificate from the Surrogate Clerk that no other application for administration has been made. But for a mere routine attendance, I think the special charge is not properly made. The wording of the Schedule is: 'On every special attendance, or for purposes of audit, \$1.00,' from which it is plain that an attendance merely to sign an order is very different from an attendance 'for purposes of audit,' and that a 'special attendance' must also be very different from it, when the special attendance is placed on the same footing, and is remunerated on the same scale as an attendance for the purpose of audit, which latter business must require special care and special adjudication, quite unlike the mere granting of an ordinary fiat in a non contentions matter.

* * * * * The order can only be in the nature of a fiat, and most likely is in all cases endorsed on the application or petition—"Let grant of administration be made to ————— as within prayed."

Yours truly,

JAS. FLEMING.

I have settled a number of disputes on the question of fees during the year. The business of the Surrogate Courts, which is very generally increasing is set out in appendix E.

GENERAL REMARKS.

The annual returns have this year generally been made promptly; in only one instance have I had any trouble in this respect. In a number of cases, however, I have had to send them back for amendment or explanation. I have had several inquiries and a good deal of correspondence in respect of the duties of the various officers placed under my inspection by order in council of 5th April, 1895.

The amounts paid to the Provincial Treasurer by officers under my inspection under R.S.O. 1897, Cap. 18, for the year 1898 are as follows :—

Sheriffs	\$549 16
Local Registrars, etc.....	3,191 12
County Attorneys, etc.....	665 82
	\$4,406 10

I have from time to time during the year required new securities to be given by several officers when their old bonds had become unsatisfactory for any reason.

In appendix F I have set out a detailed statement of the fees and emoluments of the several officers for the year 1898, and in appendix G for convenience of reference I have shown the total and net receipts of the officers for the year, and the earnings of each officer payable by the Government, the county, and the general public, respectively.

I have the honour to be, Sir,

Your obedient servant,

JAS. FLEMING,

Inspector.

OSGOODE HALL, TORONTO,
March 6th, 1899.

APPENDICES.

APPENDIX A.—Containing in tabulated form Statistics as returned

Counties or districts.	Number of Services of Writs of—								Total Services.
	Summons.		Subpoena.		Order for arrest		Miscellaneous process.		
	H.C.J.	C.C.	H.C.J.	C.C.	H.C.J.	C.C.	H.C.J.	C.C.	
Algoma	7	8	4	6		3	6	6	40
Brant	8	7	7	52			4		78
Bruce	11	12	2	30			9	4	68
Carleton	101	43	34	50		1	50	10	289
Dufferin	7	5	2	15			7		36
Elgin	11	7	1	2					21
Essex	13	16	32	102	1	3	5		172
Frontenac	16	7	2				7	1	33
Grey	8	4	10	25		2	8		58
Haldimand	9	6	2	8		1	2	1	29
Halton	4	9	1	10	1		5	2	32
Hastings	19	6	9	76			6	1	117
Huron	21	14	4	14	1		9	1	64
Kent	19	16	25	31	1	1	12	2	107
Lambton	5	5	3	20		1	1	4	39
Lanark	23	5		10				1	39
Leeds and Grenville	26	27	13	23		2	21	1	113
Lennox and Addington	14	11	38				1		64
Lincoln	30	17	9	20		2	8	1	87
Middlesex	26	12	13	53	1		7	9	121
Muskoka	5	4	82	123			3		217
Nipissing	5	2		8			2		17
Norfolk	9	5		98			16		128
Northumberland and Durham	24	10	3				13	21	71
Ontario	13	5	4	17		1	3	3	46
Oxford	21	14	3	118	1	2	4	20	183
Parry Sound	6	5	12	11					34
Peel	17	5	3	34		1	11	2	73
Perth	17	5	11	17	1	1	8	2	62
Peterborough	25	16	6	4	2	1	14	6	74
Prescott and Russell	7	10	1	3		1	4		26
Prince Edward	12	5	2	5			4		28
Rainy River	12	10	32	31			13	7	105
Renfrew	18	24	3	6	1				52
Simcoe	28	10	9	18	2	1	16	2	86
Stormont, Dundas and Glengarry	30	14	20	19	1	1	3		88
Thunder Bay	4	5	2				3	3	17
Victoria	9	13					3	2	27
Waterloo	13	11	1	21			2		48
Welland	15	5	6	10			4	1	41
Wellington	16	9	9	34			4	3	75
Wentworth	27	19	4	2	1	2	10		65
York	15	9	2	180		1	13	1	221
Toronto	89	56	27		3		35	8	218
Totals	815	508	453	1,307	17	28	356	125	3,609

by the different Sheriffs for the year ending 31st December, 1898.

Number of Estreats received.		Number of Writs of Execution received.						From Division Courts.	Number of renewals of Writs of Execution received.			
		Against both lands and goods		Against lands only.		Against goods only.			Against both goods and land.		Against lands only.	
H.C.J.	C.C.	H.C.J.	C.C.	H.C.J.	C.C.	H.C.J.	C.C.	H.C.J.	C.C.	H.C.J.	C.C.	
		12	29				2	21	10	11		
		6	12					12		3		
	1	10	21					22	2	1		
		62	33					18	4			1
		5	4					14	3	5		
		14	13	1				17				3
1		25	40			1		39				3
		17	9	1				15	5			
		13	9					25	1	3		
		5	4			1		10	1			
		4	7					4	1	1		
		24	17					16	8	4	1	2
		15	27					8	6	3		
		19	21	1		1			1	2	1	
1		17	19					19	5	2		1
		11	9				1	4				
		17	29	5	17							
		3	9									
		16	30						1			
		34	22					24	2	3	1	1
		4	4			1		4				
		12	16				1	7				
		4				4		36	1			
		32	13			5	1	16	5	3	1	2
		18	12					8	4	2		
		18	7					18	6	1		
		7	13					12	1			1
	1	14	3					9	3			
		20	9					6	6			
		14	11					12	2	1		1
		7	10					11	1			
		6	2	4	1			9	1	1		
		24	29					7		1		
		11	21					18	1			
		16	25					68	12	7		
		21	14					28			2	4
		13	11					2	1	3		1
	1	10	14					25	2	3		
		11	2					10				
		20	8					11		1		
		17	20					13	2			
		32	17					24	11	4		
	1	38	14					18	20	5		
		214	103	1		3	3	14	125	34		1
2	4	912	742	13	23	12	7	654	254	104	9	18

APPENDIX A.—Containing in tabulated form Statistics as returned by the

Counties or districts.	No. of Renewals of Writs, etc.— <i>Con.</i>			Other Writs of Execution received.				Number of	
	Against goods only.		From Division Courts.	Possession.		<i>Ca. Sa.</i>		Against goods.	
	H. C. J.	C. C.		H. C. J.	C. C.	H. C. J.	C. C.	H. C. J.	C. C.
Algoma			1	1	3		1		
Brant			3	1	1			1	
Bruce				3	1			2	
Carleton		1	3	6				2	1
Dufferin			15	1					
Elgin			3	3					
Essex				6	3		1	1	
Frontenac			1	1				1	
Grey			2				2		
Haldimand								1	
Halton			3		1			1	
Hastings		1	2	2	1			3	2
Huron			1	1				1	1
Kent				4				1	
Lambton			7					2	
Lanark				2				1	
Leeds and Grenville				1				13	
Lennox and Addington					1				2
Lincoln				1	2		1	2	1
Middlesex				11	1			3	
Muskoka									
Nipissing					1				
Norfolk			3					1	
Northumberland and Durham			2	1	1				
Ontario			1	4					1
Oxford			2				2		1
Parry Sound			3	3					3
Peel			4	2	1			1	1
Perth				1					1
Peterborough				1					
Prescott and Russell				4				1	2
Prince Edward				2	1			1	
Rainy River				1				2	2
Renfrew				1	2	1		1	1
Simcoe			18	2	1				
Stormont, Dundas and Glengarry	1	1		2	3	1	2	1	
Thunder Bay									
Victoria			2	1					
Waterloo				1				1	
Welland			1					3	
Wellington				1					1
Wentworth			21	3					
York			1	3		1			
Toronto	1		13	5	1	3		10	
Totals	2	3	113	81	25	6	9	57	20

different Sheriffs for the year ending 31st December, 1898.—Continued.

Sales under Writs execution.		From Division Courts.	Number of cases entered under Creditors' Relief Act.	Number of Certificates received under this Act.	Assignments to Sheriffs under R.S.O. 1897, c. 147.	Amounts endorsed on Writs of Execution.									
Against lands.						For Debt or Damages.			For Taxed Costs.						
H.C.J.	C.C.					H. C. J.	C. C.	Div. Ct.	H. C. J.	C. C.					
				\$	c.	\$	c.	\$	c.	\$	c.				
3			1			11,741	03	6,149	40	1,599	33	621	01	1,349	29
			1		1	5,191	46	4,357	16	1,158	45	155	65	246	41
			5		1	6,706	65	4,766	19	603	48	570	00	819	70
		1	4	7		99,082	26	7,688	75	1,740	11	2,607	27	579	07
					1	5,092	19	532	17	1,132	09	102	75	103	67
					1	13,787	18	3,583	19	1,760	48	848	62	280	44
1		1		4	1	21,687	25	8,960	10	3,770	93	1,001	67	358	47
						10,501	98	2,075	00	1,536	23	799	12	172	46
						14,515	98	3,134	43	2,900	06	990	69	214	29
			1			3,096	78	1,058	28	522	28	339	12	131	23
			1			2,636	11	1,465	96	467	94	671	41	265	71
			3	1		27,305	51	3,328	82	1,415	58	1,825	09	571	40
1			2		1	32,389	15	6,468	61	513	48	622	60	617	25
		1		7		8,978	72	5,468	70	3,947	26	1,348	41	617	73
1		1	5	7	2	32,016	82	4,945	54	1,845	51	2,157	09	662	21
			1	2		31,043	65	7,788	95	108	59	1,744	51	281	65
			7	3	5	11,614	25	8,693	34			1,155	42	638	93
						4,190	17	1,755	65	471	65	41	34	215	32
		2				32,620	50	5,406	67			544	84	447	91
						45,938	78	4,410	50	2,118	60	4,574	78	655	96
						4,298	47	716	76	434	72	200	00	157	39
		1			3	6,708	14	5,019	43	765	92	688	73	390	88
						6,870	52			926	14	362	53		
1		2			1	33,969	23	4,319	53	1,492	07	979	42	280	50
						57,406	72	3,671	57			721	34	305	05
		1	1		1	25,488	59	1,949	36	1,473	96	1,477	66	270	03
			1			3,796	85	2,325	11	1,020	86	378	78	229	89
		1	2			6,843	12	4,523	48	769	59	1,593	75	75	01
			1		2	7,458	27	1,822	15	528	99	2,925	26	507	86
						22,631	85	2,270	29	823	33	534	43	303	39
			4	6	2	7,455	48	2,015	03			565	34	224	62
2		1	2	2		8,824	54	494	51	1,082	66	649	30	155	95
			2	1	1	27,392	65	7,718	98	661	54	662	17	798	68
						9,728	99	5,083	70	1,468	85	321	16	521	72
		3	1			39,697	35	6,000	99	3,734	79	617	04	448	68
						28,894	64	2,899	27	2,675	09	1,262	99	534	55
1			1		4	189,329	23	3,579	04	168	00	557	60	249	14
						22,246	16	2,830	68	2,722	10	494	90	922	94
						8,638	83	547	48	968	66	445	79	110	01
		1	3	4		32,448	43	2,380	51			488	65	99	43
1		2	9		1	9,915	46	4,412	80	1,193	68	964	01	517	25
2					1	47,761	02	3,879	19	2,235	01	1,788	66	212	90
1						44,310	66	4,062	47			1,771	65	264	38
			4	2		428,171	74	43,182	10			12,044	25	2,321	50
14	7	11	62	40	28	1,500,417	36	207,747	74	52,758	01	55,216	79	19,330	85

APPENDIX A.—Containing in tabulated form Statistics as returned by the

Counties or districts.	From Division Courts.	Amount realized by actual Sales under Execution.					On Division Court Writs.
		Against goods.		Against lands.			
		H. C. J.	C. C.	H. C. J.	C. C.		
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	
Algona	116 80			579 72			
Brant	120 33	200 00					
Bruce	32 77	132 25					
Carleton	31 85	630 00	183 75			73 00	
Dufferin	113 14						
Elgin		26 00		225 00		80 00	
Essex		250 00					
Frontenac	66 35						
Grey							
Haldimand	42 29	39 60					
Halton	25 49	182 87					
Hastings	171 27	601 01	569 92				
Huron	22 56	25 00	147 00	105 00			
Kent	167 51		14 00			90 00	
Lambton	162 91	2,288 34		19 67		72 88	
Lanark	19 55	250 00					
Leeds and Grenville			37 75				
Lennox and Addington	25 96		80 00				
Lincoln		821 00	250 00		132 50		
Middlesex	296 19	348 17		150 00			
Muskoka	9 61			400 00			
Nipissing	37 74				2 00		
Norfolk	94 57	1,750 01				50 00	
Northumberland and Durham	165 00			35 10			
Ontario			73 80				
Oxford	140 21		239 67		560 60		
Parry Sound	16 21		506 44				
Peel	52 22	25 00	298 64			15 00	
Perth	32 96		132 55				
Peterborough	90 44						
Prescott and Russell		170 00	245 20				
Prince Edward	58 05	185 75		285 00		171 00	
Rainy River	40 61	261 15	60 00				
Renfrew		196 00	206 00			263 00	
Simcoe	163 04				416 00	60 00	
Stormont, Dundas and Glengarry		843 67					
Thunder Bay	12 96			750 00			
Victoria	259 32						
Waterloo		501 00					
Welland		1,004 21				95 00	
Wellington	47 84		188 75	500 00		230 00	
W. ntworth	190 24			173 40			
York						2,708 40	
Toronto		1,381 82					
Totals	2,825 99	11,612 85	3,233 47	3,222 89	1,110 50	3,908 28	

different Sheriffs for the year ending 31st December, 1898.—*Concluded.*

Amount realized on Executions without Sales.			Amount received for Fines, Penalties, etc.		Amount realized under Writs of <i>Ca. Sa.</i>	
H. C. J.	C. C.	Div. C.	H. C. J.	C. C.	H. C. J.	C. C.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
414 43	504 50					
100 00	532 25	274 03				
3,691 45	701 87	202 11				
20 00	312 40					
473 95	148 40	195 36				
1,143 37	2,176 89	1,263 72		50 00		
3,853 47	276 39	95 00				
724 76	382 97	222 56		65 00		165 00
450 00						
	17 30	596 11				
737 00	467 16	415 82				
225 47	427 00					
1,213 77	1,104 01	35 00				
140 13	539 25	243 95	195 00			
	180 00					
552 32	770 11	53 13				
	95 17					
1,881 00	2,098 29					
780 86	533 79	332 74	55 00			
188 94		75 00				
1,261 40	396 11					
176 29						
27 13	69 55					
	419 58					
672 89						
553 80	293 65					
4,654 28	58 22					
	573 74					
56 86		114 27				
33 80	1,175 88			25 00		
817 59	175 60	72 13		5 00		
300 00	674 88	148 47			52 00	33 14
1,072 66	626 57					
	145 88	112 69				
		79 50		70 00		
878 84		78 07				
55 38						
233 25	271 00	66 50				
839 13	258 56	84 73		66 50		
1,605 15	555 32		200 00			
29,889 37	16,962 30	4,760 89	450 00	281 50	52 00	198 14

APPENDIX B.—Being a Return of Business transacted by Local Masters throughout

Counties or districts.	Number of Orders made for the following purposes.					Number of examinations taken as Special Examiner or otherwise before trial.
	For administration of estates.	For partition or sale of property.	Respecting infants, under R.S.O. c. 137, s. 3. (Examination only).	Under Winding-up Acts.	Other Orders made in Chambers	
	(1)	(2)	(3)	(4)	(5)	(6)
Algoma						
Brant	1	2			12	
Bruce					1	20
Carleton	2	1			108	54
Dufferin	1				11	1
Elgin	1	2				21
Essex	3	2				19
Frontenac		2			2	9
Grey	1	1			55	52
Haldimand						1
Halton					4	
Hastings	2				68	38
Huron		1			3	
Kent	1	3			10	1
Lambton		1			17	4
Lanark	1					1
Leeds and Grenville	2	7			13	2
Lennox and Addington					2	5
Lincoln	2	3			4	8
Middlesex		1				53
Muskoka and Parry Sound						
Nipissing						
Norfolk					1	
Northumberland and Durham	1				13	2
Ontario	1				7	
Oxford	1					19
Peel					27	
Peterborough	6				68	
Prescott and Russell					6	
Prince Edward	2				3	3
Renfrew					7	
Simcoe		4			26	16
Stormont, Dundas and Glengarry	2	2			57	
Thunder Bay and Rainy River				1		
Victoria						
Waterloo						1
Welland		1				1
Wellington	5				49	35
Wentworth	3	1			40	
Totals	38	34		1	614	366

the Province of Ontario, during the year ending 31st December, 1898.

Number of Judgments or Orders brought into Master's Office for taking the following accounts, etc.

(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Administration of estates.	Executors, trustees or committees' accounts and compensation.	Foreclosure of mortgage or bond.	Redemption on mortgage or bond.	Sale under mortgage or agreement.	Account on any charge or lien on any land, other than mechanics' liens.	Account under Mechanics' Lien Act.	Specific performances.	Partnership accounts.	Alimony.	Partition or sale.	Damages for breach of contract or covenant.
		2									
		6			1						
			1			1					
1	3	11		4	1	2		1		1	1
1		2		2	2					1	1
1	1	4		4		1				3	
1		10		1						2	
				7						2	
				3							
4	2	1		6	1			1			
	6	1				1			1		
1										3	
1		3		3		1		1	1		
	1	4		1						8	
		1		1					1		
2				2		2				3	
1			1			6					
					1						
1		3									
5	1	2	1		1	1		1			1
		4									
3		1			5			1			
6		5									
1		2									
4		2	1								
1		1		1	1						
1		4						1			
3		3	1	2	4					1	
2	1									1	
		3									
1				1							
5		2		1		2		1	1		
3	2	10		5	1	2				3	
										1	1
52	17	87	5	50	13	19		7	4	30	3

APPENDIX B.—Being a Return of Business transacted by Local

County or district.	Number of Judgments						
	Work and labor done. (19)	Money received, paid, advanced or lent. (20)	Goods sold and delivered. (21)	Promissory notes, bills of ex- change. (22)	Bonds, life and fire insurance. (23)	Infants' estates. (24)	Quieting title matters. (25)
Algoma							
Brant							
Bruce							
Carleton							
Dufferin							
Elgin							
Essex							
Frontenac							
Grey							
Haldimand							
Halton							
Hastings							2
Huron							
Kent							
Lambton	1						
Lanark							
Leeds and Grenville							
Lennox and Addington							
Lincoln							
Middlesex		2				2	
Muskoka and Parry Sound							
Nipissing							
Norfolk							
Northumberland and Durham							2
Ontario							
Oxford							
Peel							
Perth							1
Peterborough							
Prescott and Russell							
Prince Edward							
Renfrew							
Simcoe	1						
Stormont, Dundas and Glengarry							
Thunder Bay and Rainy River							
Victoria							
Waterloo	2						
Welland							
Wellington							2
Wentworth							2
Totals	4	2				2	9

Masters throughout the Province of Ontario, etc.—*Concluded.*

or Orders, etc.		Number of advertisements of sale issued.	Number of reports isued.	Number of references pending at date of return.	Number of bills of costs taxed by Master.	Amount realized by sales held under direction of Master.	Amount of costs of reference or taxed by Master, or under his direction.	Amount of commission allowed in administration and partition matters.	Amount of fees earned by Local Masters.
Lunacy.	Miscellaneous.								
(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
						§ c.	§ c.	§ c.	§ c.
			2	1	2		142 85		56 90
			9	4	6		454 16	115 00	138 40
			2	3	3		280 00		75 30
	2	8	27	9	26	53,883 13	2,231 01	786 00	2,029 30
		2	2	2	2	3,900 10	340 96		85 82
	5	2	15	9	14	7,100 00	752 12	133 75	913 31
	3	6	14	9	12	10,800 00	809 54	379 00	603 75
		1	16	4	21	960 00	810 78	123 00	353 97
		3	6	2	18	6,560 00	685 77	373 14	402 71
		5	5	5	5	4,550 00	127 18	135 00	330 56
					2	15,000 00			86 10
	6	6	12	11	10	44,275 00	969 91	105 00	1,206 30
		5	12	7	13	11,050 00	1,018 49	750 00	340 28
		3	3		12	750 00		112 50	72 64
			4	3	3		823 95	16 60	207 65
		3	8	2	7	12,335 00	504 29	243 25	118 81
	10		22	4	18	16,965 00	1,145 48	995 27	661 31
	1	1	2	1	2		160 49		97 30
		5	11	5	1	14,450 00	32 38		966 68
1	1		4	11	6	5,000 00	520 60	937 08	1,644 90
				1					13 50
1	1	2	12	4	14	4,920 00	1,002 14	284 00	510 57
		3	3	1	8	45 00	181 00	181 25	159 33
		2	6	5	8		589 25	1,754 75	887 74
			4		4		530 22		100 25
		6	11	4	9	16,093 64	1,401 52	50 00	834 90
		3	12	3	7	3,528 75	554 85	325 00	426 90
		1	3	2	2	683 85	154 48	58 75	58 07
		2	6	2	7	10,539 00	664 65	332 90	269 20
		1	5	1	5	900 00	436 24		57 35
1		3	9	5	16	9,444 00	1,583 26		229 50
		6	10	11	11	10,445 00	1,329 61	367 36	352 38
				1	1		83 84		16 00
1			5	2	5		478 66		169 40
		1	7	1	29	37,700 00	927 18	283 00	123 90
	3	9	27	2	25	14,325 00	2,310 91	1,990 82	1,484 52
3	3	5	34	11	40	15,395 00	3,587 67	381 00	697 18
10	35	94	330	148	374	331,597 57	27,605 44	11,216 42	16,184 88

APPENDIX C.—A return of all business transacted by Local Registrars, Deputy-

Counties or Districts.	Number of writs of summons issued.	Number of orders for arrest issued.	Number of actions returned in Procedure Book.	Number of <i>lis pendens</i> issued.	Number of <i>practicæ</i> orders issued.	Number of orders issued and signed by Local Judge.	Number of examination of parties returned.	No. of actions entered for trial.		Number of judgments entered without trial.
								By jury.	Without jury.	
Algoma	31		33	6		26	4	1	2	7
Brant	42		32	2	10	29	2	4	8	13
Bruce	66		51	8	22	25	22	8	9	10
Carleton	270		238	13	140	94	82	18	53	88
Dufferin	33		25	10	6		7	2	6	4
Elgin	114		90	6	44	54	32	7	8	25
Essex	112	1	107	12	29	71	30	14	25	45
Frontenac	86		75	4	26	42	16	2	12	35
Grey	62		59	3	21	5		16	6	6
Haldimand	24		16	3	7	10		3	6	3
Halton	11	1	6		7	5	3	3	3	5
Hastings	116		94	7	85	50	24	12	44	20
Huron	74	1	67	11	37	39	14	3	22	10
Kent	73		61	9	38	36	73	7	17	14
Lambton	72		66	3	21	21	38	5	25	10
Lanark	73		48	1	19	42	18	6	10	21
Leeds and Grenville	55	2	45	2	3	3	21	6	4	27
Lennox and Addington	39		28	9	15	10	14	4	4	4
Lincoln	69		69	3	30	17	20	12	8	26
Middlesex	285	1	191	12	116	115	24	17	44	62
Muskoka	14		12	2	11	4	5	1	1	1
Nipissing	24		17	1	6	11	11	3	7	15
Norfolk	31		23	4	15	9	7	3	3	4
Northumberland and Durham	76		46	4	26	18	14	4	13	15
Ontario	34		33	3	13	3	7	4	5	18
Oxford	87		78	11	30	30		8	15	12
Parry Sound	7		10	1	5		2		2	3
Peel	24		28	2	16	25	17	7	8	8
Perth	110	1	90	19	70	59	47	3	24	19
Peterborough	107		77	9	28	1	12	10	7	27
Prescott and Russell	15		15		5	11	7	2	4	6
Prince Edward	40		30	3	64	9	13	4	4	13
Rainy River	78	1	78	1	42	25	21	6	19	14
Renfrew	51	1	49	5	13	50	15	10	11	15
Simcoe	106	2	90	7	38	25	36	12	20	14
Stormont, Dundas and Glengarry	116	1	83	5	51	42	1	16	12	28
Thunder Bay	11		15	1	15	12	9		6	2
Victoria	26		15	3	7	4	4	5	1	7
Waterloo	68		43	3	12	23	22	5	7	16
Welland	51		45	9	28	34	9	2	10	11
Wellington	87		61	9	43	2	13	7	12	26
Wentworth	233		222	8	130	62	52	36	47	62
Totals	3,108	12	2,561	234	1,344	1,153	778	298	559	772

Registrars, and Deputy Clerks of the Crown, for the year ending 31st Dec. 1898.

Amount of such judgments without costs.		Total amount of costs taxed thereunder.		Total amount of disbursements allowed.		Number of judgments entered after trial.	Total amount of such judgments without costs.		Total amount of costs taxed thereunder.		Total amount of disbursements allowed.		Number of over \$10,000.	Number of judgments for such \$10,000, over \$5,000.
\$	c.	\$	c.	\$	c.		\$	c.	\$	c.	\$	c.			$	c.
2,895	65	236	78	61	64			455	75	902	50	370	58	
33,190	22	229	40	60	35	5		4,655	33	900	91	469	16	1
3,487	24	263	06	62	93	12		44,166	92	7,567	48	3,230	49	1
112,935	40	4,953	23	1,695	62	43		475	00					5
4,694	42	62	95	15	80	1		7,323	56	1,821	00	794	48	
26,820	36	735	76	196	61	17		5,139	65	2,671	14	1,317	75	1
24,278	99	1,409	00	342	23	23		1,342	00	758	50	417	51	1
41,805	39	905	11	243	65	6		5,586	80	422	51	213	46	2
8,988	12	168	50	273	74	6		6,314	71	271	16	101	16	
521	72	304	08	163	63	3		500	00	92	76			
4,718	45	244	00	138	16	2		1,234	00	1,303	74	585	11	
20,091	90	408	63	84	71	24		1,130	97	447	39	268	29	
8,350	48	394	88	138	41	9		6,358	92	1,369	39	799	25	
8,609	79	419	17	165	37	10		5,712	57	1,758	36	821	72	
10,292	67	222	05	48	76	13		10,000	00	202	93	61	50	1
25,155	52	827	98	279	54	1		393	45	494	50	293	15	1
17,181	32	389	15	114	80	4		656	07	791	30	393	64	
3,847	93	180	99	52	28	5		6,777	84	1,227	38	404	19	2
59,590	06	984	97	240	65	6		8,000	32	3,923	83	1,904	93	2
36,562	53	1,433	05	447	53	24		1,310	09	200	00			
976	05	21	57	4	87	1								
5,778	64	407	11	100	63	2								
8,985	27					3		500	00	226	72	120	73	1
24,933	93	453	02	87	88	6		2,342	00	1,570	31	755	53	1
16,023	36	326	82	114	92	2		142	85	10	00			
21,935	86	261	11	55	51	17		14,253	17	2,063	04	825	76	2
1,531	09	156	44	37	21									
8,588	34	403	63	123	58	10		3,089	91	631	70	176	70	1
2,874	72	273	15	90	30	21		7,283	86	1,557	40	780	76	
24,839	45	844	95	224	50	11		13,848	64	1,482	68	689	13	1
1,000	45	100	65	318	59	4		1,000	00	342	47	247	95	
14,950	43					2								
12,933	29	351	06	82	35	5		5,528	40	646	87	247	85	
10,843	46	715	57	209	24	7		2,554	47	569	23	396	40	
10,257	31	296	03	117	93	12		16,401	49	1,588	01	720	77	1
28,963	96	498	67	157	32	12		4,610	73	1,341	14	553	85	1
5,596	60	54	28	15	28	5		1,075	22	538	45	263	47	1
3,213	15	215	00	42	52	1		1,000	00	123	00	67	11	
42,537	45	919	64	264	55	5				738	83	365	76	3
21,807	16	148	61	52	66	5		3,026	16	471	24	299	94	2
10,523	76	408	59	114	03	6		2,000	00	685	83	205	51	
89,247	98	2,461	23	582	40	30		16,224	87	2,899	97	1,205	15	1
822,374	87	24,090	87	7,621	68	381		212,415	72	44,613	67	20,368	74	5
														31

APPENDIX C—A return of all business transacted by Local Registrars, Deputy-Registrars,

Counties or Districts.	No. of judgments under \$5,000, over \$2,000	No. of judgments under \$2,000, over \$1,000.	No. of judgments under \$1,000, over \$400.	No. of judgments for \$100 and under.	No. of judgments for reference to masters.	No. of writs of execution against goods only.	No. of writs of execution against lands only.	No. of writs of execution against goods and lands.
Algoma			2	13			4	
Brant	3	1	3	1	4		1	11
Bruce	1	2	3	3				9
Carleton	13	18	28	32	24	12	8	35
Dufferin	1	1		3	1			3
Elgin	5	7	13	17	5			23
Essex	2	2	5	12	16			20
Frontenac	2	9	9	8	13			16
Grey			4	13	4			7
Haldimand		1	1	4	2	1		1
Halton	2		1	4	1			5
Hastings	3	4	4	11	12			19
Huron	1	1	4	13	3			10
Kent	3	2	4	4	3			18
Lambton	2	4	10	3	4			4
Lanark	3	5	7	6	5			16
Leeds and Grenville	2	2	7	1	18			6
Lennox and Addington	1	1	2	5	2			4
Lincoln	5	6	6	6	1			16
Middlesex	4	6	17	19	3			39
Muskoka		1	1					1
Nipissing		1	6	2	1		1	4
Norfolk	1			5				2
Northumberland and Durham	4	6	2	5	3			10
Ontario		3	3	8	2		5	14
Oxford	5		7	7	5			8
Parry Sound		1	1					2
Peel		1	7	5	3			8
Perth	1	2	5	30	2			21
Peterborough	6	9	10	4	3	11	12	23
Prescott and Russell	1		1	8				3
Prince Edward	3	2	4	1	5			6
Rainy River	2	4	9	4				10
Renfrew	2	3	6	4				9
Simcoe	1	2	4	5	5	2	1	7
Stormont, Dundas and Glengarry	5	2	10	10	9			14
Thunder Bay		1	1	2	1			8
Victoria		1	2	3	1			5
Waterloo	4	5	3	1	13			9
Welland	3	1	3	5	2		1	10
Wellington		5	5	3	11			10
Wentworth	9	17	17	27	34		1	62
Totals	100	139	247	306	221	26	36	508

and Deputy Clerks of the Crown, for the year ending 31st Dec. 1898.—*Concluded.*

No. of writs of <i>Ca. La.</i> issued.	No. of certificates under Creditors Relief Act.	Amount for which issued without costs.	Amount of costs allowed thereunder.	Amount of money paid into court with d fence.	Amount of money paid out of court.	No. of days' sitting of judge with jury.	No. of days' sitting of judge without jury	No. of estreats ordered to be issued	No. of estreats issued.	Amount of jury fees paid county treasurer.	Amount of fees collected in law stamps by Deputy Clerks and Local Registrars.	Amount of fees collected in law stamps by Deputy Registrars.
		£ c.	£ c.	£ c.	£ c.					£ c.	£ c.	£ c.
						2	2			3 00	139 80	
						3	6			3 00	184 00	
						6	2			24 00	370 05	
						16	19			54 00	964 56	218 00
						7				6 00	120 40	
						7				21 00	474 30	
						8	12			42 00	442 20	50 80
						4	2			3 00	467 30	
				4,942 98		13	7			51 00	372 85	
						4	3			9 00	104 50	
						2				9 00	74 50	
				15 00	15 00	10	5			30 00	181 60	491 00
				50 00		7	9			6 00	277 40	
						9	12			21 00	357 00	36 00
				5,470 00		7	4	1	1	18 00	355 40	
						8				18 00	265 30	
						5	2			6 00	294 65	
				5 00	5 00	15				12 00	196 40	
						8	2			36 00	189 00	56 50
						16	10			51 00	453 90	243 90
						6	3			3 00	55 80	
						2	1			9 00	119 45	
						5	3			9 00	100 60	
				91 00		6	5			12 00	256 65	
						6	2			12 00	168 20	
						6	6			21 00	249 80	52 20
											58 30	
				550 00		1	5			21 00	205 20	
						6	4			9 00	571 90	
				2,444 05		6	6			18 00	514 60	
						4					76 70	
				4,355 12		4				9 00	255 50	
						17				32 00	296 55	
						5				30 00	239 35	
				75 60		6	7			36 00	161 10	57 40
				50 00	50 00	13	2			48 00	503 30	
				600 00			6				115 90	
						6	2			15 00	113 80	
						5	3			15 00	253 55	
						6				6 00	252 90	
				456 00		5	4			21 00	418 60	
						26	9			108 00	808 90	551 36
				19,104 75	70 00	298	173	1	1	867 00	12081 76	1,757 16

APPENDIX D.—Being a return of business transacted by County Court Clerks

Counties or Districts.	Number of Writs of summons issued.	Number of Orders for Arrest issued.	Number of Actions entered in Procedure Book.	Number of <i>Lis pendens</i> issued.	Number of <i>Procepit</i> orders issued.	Number of Orders issued and signed by Local Judge.	Number of Examinations of parties.	Number of Actions entered for Trial.		Number of Judgments entered without trial.
								(a) By Jury.	(b) Without Jury.	
Algoma	33		24			13		3	2	13
Brant	41		36	1	6	14	3	5	2	17
Bruce	32	1	24	2	11	27	1	4	4	8
Carleton	115		92		33	43	25	8	12	50
Dufferin	15	1	7	1	1	4	4	1	1	3
Elgin	50		46		14	24	22	6	10	14
Essex	40	1	33		11	43	6	1	7	15
Frontenac	26		25		6	17	7	1	2	19
Grey	30		27	2	11	2	2	6	5	4
Haldimand	8		6			5		1	1	2
Halton	11		10		3	4		1	1	2
Hastings	58		36		18	25	6	3	1	9
Huron	33		35	2	22	31	5	7	3	16
Kent	32		24		4	19	16	2	2	17
Lambton	22	1	21	1	8	6	16	3	4	6
Lanark	23		10		4	3	2	1	1	1
Leeds and Grenville	41		30		2	5	5	3	2	18
Lennox and Addington	21		16	1	6	9	6	1	2	9
Lincoln	33	1	24		5	16	3	3	3	13
Manitoulin	20		21	1	16	23	9	2	6	5
Middlesex	134	3	89		28	36	10	7	10	41
Muskoka	5		5		2	12	3		4	1
Nipissing	14		8		2	11	2	3	1	7
Norfolk	2		1			4				
Northumberland and Durham	36		14		12	21	8	2	6	8
Ontario	28	1	24			15	2	2		9
Oxford	41	2	31		17	27	4	5	5	12
Parry Sound	4		3							2
Peel	20		13		13	34	5	5	1	3
Perth	30		27	2	14	18	14	10	2	10
Peterborough	38	1	24		9	6	4	5	3	11
Prescott and Russell	10		10		6	8	2		2	7
Prince Edward	8		8		9	2	2	1	1	1
Rainy River	50		47	1	20	22	6	3	10	18
Renfrew	42		31	1	2	28	2	1	3	17
Simcoe	52		42		19		13	6	2	20
Stormont, Dundas and Glengarry	41		24		12	21	1		4	14
Thunder Bay	32		27		7	41	7		1	10
Victoria	31		31		6	10	3	3		6
Waterloo	35		26		11	17	7	1	5	8
Welland	20		16		7	6	4	2	3	7
Wellington	47		39	1	5	23	2	1	3	21
Wentworth	118	1	89		36	52	4	17	7	47
York	747	2	551		209	385	43	44	152	206
Totals	2,269	15	1,727	16	627	1,132	284	174	301	727

throughout the Province of Ontario during the year ending 31st December, 1898.

(a) Total amount of such Judgments without cost.		(b) Total amount of Costs taxed thereunder.		(c) Total amount of Disbursements allowed.		Number of Judgments entered after trial.	(a) Total amount of such Judgments without cost.		(b) Total amount of Costs taxed thereunder.		(c) Total amount of Disbursements allowed.		Total number of Judgments.	Number of Executions against Goods and Lands.	Number of Writs of <i>Ca. Sa.</i> issued.	Number of Certificates under Creditors' Relief Act.	Amount for which issued, without costs.
£	c.	£	c.	£	c.		£	c.	£	c.	£	c.						c.
4,695	66	285	74	70	72	4	1,340	98	517	86	201	31	17	9			
2,095	73	123	16	29	99								17	12			
2,525	22	119	38	36	83	6			739	06	288	44	14	14	1		
13,211	66	839	53	213	65	10	1,251	80	504	58	276	55	60	34			
240	82	18	45	4	72	1	159	00	33	35	10	71	4	3			
4,191	52	260	61	74	88	7	1,065	76	410	72	185	66	21	10			
3,914	88	204	54	73	31	6	832	81	340	14	291	89	21	41		2	195
3,045	06	147	56	83	08	1	410	00	182	77	84	73	20	9			
1,165	88	81	51	54	44	5	1,275	29	152	11	22	56	9	5			
479	02	44	82	12	67	1	38	00	56	52	17	49	3				
269	50	38	10	17	93	2			123	35	58	06	4	4			
1,640	53	211	53	38	59	4	389	30	661	10	246	28	13	12		1	310
3,900	51	400	45	136	22	4	356	37	498	54	302	12	20	14			
5,522	66	368	22	97	79	6	799	04	800	81	452	59	23	6			
1,631	75	100	06	26	00	4	301	59	430	42	233	17	10	4		4	256
223	07	34	44	13	87	2	176	33	354	68	192	33	3	3			
4,185	67	293	11	84	53	3	106	00	258	89	142	44	21	15		2	3,645
2,164	98	172	56	52	66	2	80	00	17	34	17	34	11	10			
3,729	58	266	23	67	03								13	8	1		
1,088	36	150	45	30	83	6	503	19	763	92	412		11	5			
9,193	25	927	68	270	89	7	581	85	424	10	116	61	48	45			
295	21	41	59	15	85								1	2			
1,479	77	186	60	42	70	2	207	00	219	00	142	10	9	2			
														1			
1,854	74	212	52	20	59	1	90	00	90	14	58	59	9	4			
2,515	81	132	31	47	52	2	269	67	118	52	102	72	11	17		1	394
2,710	98	348	69	159	09	2	75	00					14	8	1		
382	69	43	59	14	30								2				
1,367	39	47	36	14	76	4	578	08	301	30	71	08	7	3			
3,189	48	178	75	42	91	3	446	60	475	15	221	20	13	10			
2,640	84	314	65	106	34	1	164	00	107	86	50	00	12	16			
1,899	30	107	71	35	65								7	3		2	288
						2	556	60	328	83	179	09	3	2		1	27
4,535	45	299	16	57	48	5	1,219	82	341	18	128	58	23	16			
4,241	62	337	99	121	00	2	2,248	00	221	86	107	45	19	3			
6,301	90	372	19	106	21	2			137	45	44	57	22	13			
2,591	36	169	23	64	32	1			150	20	60	51	15	15	1		
4,388	32	298	91	78	11	2	254	99	184	51	102	46	12	10			
2,025	28	116	47	38	60	1			131	10	75	00	7	4			
2,216	67	152	22	45	14	1	127	04	55	61	10	42	9	4			
1,932	09	120	34	40	32	2	215	61	101	31	113	72	9	4			
4,796	35	561	93	108	74	1	159	75	166	30	88	58	22	14			
10,388	41	744	85	207	61	8	1,204	70	978	18	497	81	55	43			
55,133	66	3,581	35	768	66	59	4,463	44	4,625	17	1,031	70	265	193	2	2	21,529
186,002	56	13,406	54	3,626	44	182	22,203	51	16,003	93	6,638	07	909	650	6	15	26,597

APPENDIX D.—Being a return of business transacted by County Court Clerks throughout

Counties or Districts.	Amount of costs allowed thereunder.		Amount of money paid into Court with defence.		Amount of money paid out of Court.		Number of days sitting of Judge with Jury.		Number of days sitting of Judge without Jury.		Number of days sitting of County Court.		Amount of Jury fees paid to County Treasurer.		Number of Partition matters.		Amount of money paid in thereunder.	
	£	c.	£	c.	£	c.					£	c.			£	c.		
Algoma											7	4 50						
Brant											7	7 50	1					
Bruce			70	00	70	00					6	6 00						
Carleton			125	00			8	14	22	13	50							
Dufferin									4	1	50							
Elgin			250	50					20	7	50							
Essex	13	80	510	73					7									
Frontenac			200	00					4	1	50	1						
Grey									13	9	00							
Haldimand							1	1	2	1	50							
Halton									3									
Hastings	9	98	250	00	250	00			12	4	50							
Huron			18	75	18	75			15	7	50				109	74		
Kent							9		8									
Lambton	22	01	51	80	51	80			5	4	50							
Lanark			30	00					2	1	50	1						
Leeds and Grenville	14	35							5	4	50							
Lennox and Addington									4	1	50							
Lincoln					104	00			3									
Manitowlin									6									
Middlesex			268	88	270	83			15	10	50							
Muskoka					50	00												
Nipissing									4	3	00							
Norfolk																		
Northumberland and Durham							7	2	9	3	00							
Ontario	9	85	116	37	116	37			3	3	00							
Oxford									9	7	00							
Parry Sound																		
Peel									13	7	50							
Perth			270	50	140	74			15	15	00							
Peterborough									6	7	50							
Prescott and Russell	12	70	100	00	100	00			6									
Prince Edward	4	20			200	00			1	1	50							
Rainy River									10									
Renfrew									4	1	50							
Simcoe									9	12	00							
Stormont, Dundas and Glengarry									7									
Thunder Bay									1									
Victoria									5	4	50							
Waterloo							5	1	6	1	50	4	1,143	46				
Welland									5	3	00		179	35				
Wellington			180	00					6	1	50							
Wentworth			160	00	125	00			13	25	50	1	400	00				
York	25	85	727	93	1,915	58			84	66	00							
Totals	112	74	3,360	46	3,413	07	30	18	386	250	00	8	1,832	55				

the Province of Ontario during the year ending 31st December, 1898.—*Concluded.*

Amount paid out.		Amount at joint credit of Judge and Clerk, including interest allowed.		Number of Chattel Mortgages and Bills of Sale filed.		Total amount secured by such Mortgages.		Number of Mortgages renewed.		Number of Discharges filed.		Number of Assignments filed under R. S.O., chap. 124.		Number of Hire receipts filed under 57 Vict., chap. 19.		Total amount secured by such receipts.		Amount of fees earned by Clerk, not including salary paid.		
£	c.	£	c.	£	c.	£	c.	£	c.	£	c.	£	c.	£	c.	£	c.	£	c.	
				185		421,482	04	15		1		4							231	57
33	23	1,929	55	216		115,090	21	162		3		9	66	10,101	45			458	15	
685	25	3,269	56	813		2,345	50	395		7	19	90	90	9,405	55			859	10	
				358		601,316	74	337		27	37	66	66	10,861	66			1,112	60	
				141		34,274	01	136		2		1	28	1,910	45			250	45	
29	92	286	56	448		154,380	31	153		10	12	173	133	9,337	85			670	39	
		97	86	461		144,656	39	175		5	15	133	133	6,885	95			640	60	
		556	93	453		176,681	34	226		5	8	149	149	7,242	00			434	45	
				1,066		257,846	84			4	11	73	73	4,251	15			687	75	
				142		36,278	54	39		4	1	14	14	1,221	00			198	90	
				90		43,608	78	58		3		6	16	4,057	12			153	20	
397	48	830	81	834		193,753	32	299		15	13	90	90	5,320	73			871	78	
33	41	3,738	60	422		198,797	82	189		13	19	19	19	3,135	00			391	05	
				817		156,201	31	429		9	20	1,023	1,023	44,231	73			897	40	
				371		197,491	15	216		15	13	97	97	7,024	33			538	49	
				250		81,354	93	87		2		9	8	298	00			262	85	
				281		79,212	34	195		12	22	21	21	1,428	00			592	38	
				142		57,178	89	136		8	3	91	91	5,039	05			369	70	
				195		99,836	29	149		5	6	17	17	5,088	00			410	34	
				106		107,235	70	28		2		13	13	4,779	83			235	05	
				469		133,118	96	330		9	17	150	150	22,058	05			927	60	
												29	29	4,053	47			62	07	
				237		815,677	86	56		4	14	17	17	4,840	25			220	65	
		496	83	234		42,451	87	98		3	4	128	128	5,910	22			326	80	
				393		129,988	26	335		7	12	60	60	5,108	50			542	95	
				229		101,078	41	202		3	5	88	88	5,223	49			448	00	
2,829	51			215		92,638	07	142		13	15	71	71	10,553	95			650	35	
																			7	70
			51	82		35,364	32	92		10	2							318	33	
				156		166,123	13	108		7	8	20	20	2,461	59			563	50	
				357		815,892	85	159		5	13	45	45	5,445	50			343	00	
				130		99,391	67	72		6	5	28	28	3,682	27			201	44	
				126		37,697	04	92		6		1	7	590	00			404	75	
																			204	30
				257		150,242	23	145		11	9	34	34	3,796	25			465	27	
				474		185,880	67	305		9	12	136	136	15,042	85			806	04	
				373		125,761	49	141		11	15	119	119	8,362	47			510	10	
				36		19,818	96	20			8	38	38	5,511	75			258	15	
				335		546,583	00	119		5	6	78	78	4,214	00			314	60	
524	22	619	24	300		210,460	24	142		11	21	71	71	11,034	98			412	25	
		179	35	302		103,705	63	100		4	4	54	54	3,991	03			343	45	
1,342	81	3,459	01	454		236,388	80	182		9	15	98	98	5,526	25			523	70	
400	00			468		144,738	90	373		15	29	132	132	222,752	25			1,293	40	
		4,394	05	1,767		631,231	00	902		40	48	1,099	1,099	108,624	00			4,602	85	
6,265	83	19,909	78	15,205		7,983,261	81	75	39	340	490	4,692	4,692	595,452	87			25,017	95	

APPENDIX E.—Being a return of business transacted by Surrogate Registrars

Counties or districts.	Total number of Probates issued.	Total number of Letters of Administration issued.	Total number of Letters of Guardianship issued.	Total number of Probates and Letters of Administration issued under R. S. O. 1897, c. 59, s. 77.	Total number of Probates and Letters issued under R. S. O. 1897, c. 59, s. 74.	Number of Wills proved or Guardianship issued as fol-			
						Above \$100,000.	From \$50,000 to \$100,000.	From \$25,000 to \$50,000.	From \$10,000 to \$25,000.
Algoma	9	7	.....	5	2	.....	.....	.....	2
Brant	78	32	8	18	15	.....	1	1	4
Bruce	89	28	2	20	16	.....	.....	.....	6
Carleton	123	64	8	27	17	3	1	2	11
Dufferin	36	12	3	7	5	.....	.....	.....	.....
Elgin	62	33	1	16	13	.....	.....	1	2
Essex	64	35	5	17	11	.....	.....	.....	.....
Frontenac	50	27	4	10	6	1	1	4	3
Grey	87	49	1	57	28	.....	1	1	1
Haldimand	43	24	3	11	15	.....	.....	.....	.....
Halton	41	18	3	9	6	.....	1	.....	1
Hastings	75	34	3	21	11	.....	.....	1	4
Huron	126	44	3	19	16	.....	.....	2	4
Kent	96	35	3	21	23	.....	.....	2	2
Lambton	69	46	5	8	17	.....	1	.....	4
Lanark	36	19	1	12	6	.....	1	.....	3
Leeds and Grenville	92	33	9	19	11	.....	.....	2	5
Lennox and Addington	25	12	1	3	7	.....	.....	1	1
Lincoln	70	23	1	10	9	.....	.....	1	10
Manitoulin	4	3	.....	2	.....	.....	.....	.....	.....
Middlesex	184	107	16	36	43	.....	.....	4	8
Muskoka	17	4	.....	4	11	.....	.....	.....	.....
Nipissing	6	5	.....	5	2	.....	.....	.....	.....
Norfolk	41	17	2	8	7	.....	.....	.....	3

throughout the Province of Ontario during the year ending 31st December, 1898.

and Letters of Administration where personally valued lows:				Total amount of personally devolving.	Total amount of realty to be administered under R. S. O. 1897, c. 127, s. 4.	Amount earned for—							
From \$5,000 to \$10,000.	From \$1,000 to \$5,000.	From \$400 to \$1,000.	\$400 and under.			Registrar's fees.		Judge's fees.		Fee fund.			
				\$	c.	\$	c.	\$	c.	\$	c.		
1	6	5	2	52,371	70	33,749	00	135	90	98	30	64	00
4	35	29	36	299,631	97	201,055	63	1,012	95	575	75	327	00
6	35	34	36	240,823	00	189,623	00	1,071	93	301	50	605	95
13	65	48	52	1,047,548	46	127,734	00	1,870	96	1,362	05	864	30
.....	16	17	18	45,893	36	16,000	00	425	65	143	90	104	50
1	38	22	25	196,149	72	120,514	50	826	78	362	30	250	90
6	35	22	34	154,599	66	333,939	50	854	38	409	75	233	50
4	27	16	21	424,530	55	259,232	00	827	06	574	50	308	00
2	47	28	57	242,691	77	170,447	00	1,092	82	597	25	345	00
2	21	20	27	83,992	01	96,150	00	581	75	282	75	134	50
7	19	13	21	173,009	57	.....	.....	612	79	396	40	195	50
6	36	36	35	224,966	90	27,680	00	926	75	429	80	709	18
9	70	41	47	416,755	82	40,405	00	1,710	70	1,019	25	471	00
6	37	33	51	249,701	68	315,883	00	997	10	572	40	348	60
4	40	25	41	249,382	50	168,003	00	894	35	482	75	308	50
3	26	28	14	122,462	00	135,810	00	621	44	296	20	219	00
8	43	32	35	309,650	57	38,675	00	1,223	37	555	75	294	65
2	14	6	14	83,445	01	73,000	00	384	15	180	10	97	50
5	40	11	24	332,221	50	264,558	50	825	23	488	60	349	50
.....	5	2	.....	5,656	00	7,800	00	51	00	24	00	15	00
14	106	65	110	710,186	25	109,805	00	2,429	90	1,320	40	826	50
1	5	4	11	19,324	51	36,072	50	150	40	47	50	43	00
1	3	2	3	13,700	39	.....	.....	56	25	26	50	24	50
5	14	13	25	129,988	42	99,202	00	618	39	250	00	155	50

APPENDIX E.—Being a return of business transacted by Surrogate Registrars throughout

Counties or districts.	Total number of Probates issued.	Total number of Letters of Administration issued.	Total number of Letters of Guardianship issued.	Total number of Probates and Letters of Administration issued under R. S. O. 1897, c. 59, s. 77.	Total number of Probates and Letters issued under R. S. O. 1897, c. 59, s. 74.	Number of Wills proved or Guardianship issued as fol-			
						Above \$100,000.	From \$50,000 to \$100,000.	From \$25,000 to \$50,000.	From \$10,000 to \$25,000.
Northumberland and*Durham...	100	65	8	19	23			4	7
Ontario	68	29	2	14	15			1	2
Oxford	92	32	7	9	15			2	17
Parry Sound	7			4	4				
Peel	48	16	4	11	7	1	1	1	1
Perth	109	47		25	16	1			2
Peterborough	49	19	1	15	11				5
Prescott and Russell.....	30	15	1	5	7				
Prince Edward	43	16	3	6	6			1	3
Rainy River.....	2	8		5	1				1
Renfrew	35	12		4	5	1	1	1	1
Simcoe	102	49	4	29	26				2
Stormont, Dundas and Glengarry	54	42	6	8	22	1	1	3	4
Thunder Bay	7	2		4	1			1	
Victoria.....	36	24	2	8	10				1
Waterloo	116	24	2	24	8			2	8
Welland	49	31	2	9	6				3
Wellington	104	46	3	19	18	2		1	3
Wentworth	141	70	9	34	33	2	2	5	8
York	291	217	28	74	104	4	4	8	21
Totals.....	3,006	1,465	164	691	635	16	16	52	163

the Province of Ontario during the year ending 31st December, 1898.—*Concluded.*

and Letters of Administration where personally valued low's :				Total amount of personally devolving.	Total amount of realty to be administered under R. S. O. 1897, c. 127, s. 4.	Amount earned for—		
From \$5,000 to \$10,000.	From \$1,000 to \$5,000.	From \$100 to \$1,000.	\$400 and under.			Registrar's fees.	Judge's fees.	Fee fund.
				\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
12	60	32	50	539,870 05	327,686 00	1,397 07	890 75	556 00
5	26	30	35	179,364 88	16,512 50	753 90	520 75	237 00
24	54	9	18	273,860 10	293,188 00	1,556 75	847 00	360 00
5	4	4	6	9,237 55	.....	61 63	24 00	22 00
5	26	18	13	224,534 83	15,255 00	660 61	320 90	183 03
12	59	35	47	439,426 28	422,156 00	1,429 50	840 50	476 00
2	24	12	25	159,021 01	143,082 33	531 23	296 00	541 18
3	13	14	16	40,216 40	39,968 20	343 52	124 00	96 00
9	12	7	27	165,889 94	134,460 00	558 47	233 00	174 50
.....	3	5	1	15,103 87	8,972 02	76 98	48 50	26 00
.....	17	12	11	283,400 31	118,667 00	402 35	357 25	215 00
5	49	23	55	183,805 73	39,175 00	1,227 75	420 50	298 00
5	30	20	38	436,745 10	24,300 00	845 25	551 25	360 50
2	1	4	1	51,824 88	.....	70 29	71 25	42 00
2	27	13	17	91,104 20	10,550 00	450 95	179 95	132 50
11	51	32	38	392,952 55	412,146 78	1,017 86	680 75	436 00
2	28	17	32	143,797 65	150,651 65	841 03	409 45	205 50
8	71	29	40	733,610 00	289,968 00	1,415 44	1,194 75	613 50
10	67	37	89	1,025,418 91	654,503 65	2,252 70	1,743 00	848 50
39	167	113	180	2,487,834 00	.....	4,476 28	4,646 75	2,103 50
271	1,572	1,017	1,476	13,705,701 56	5,966,580 79	40,571 56	25,197 00	15,222 29

APPENDIX F.—Return of fees and emoluments of County Judicial Officers in the

County or district.	County town.	Office.	Officer.	Amount earned.		Salaries paid by Government.	
				\$	c.	\$	c.
Algoma	Sault Ste Marie	Sheriff	W. H. Carney	2,206	79	1,000	00
		Surrogate Judge	Judge Johnson	98	30	.....	.....
		Local Master	"	56	90	.....	.....
		District Crown Attorney	J. J. Kehoe	122	30	.....	.....
		Clerk of the Peace	"	406	40	400	00
		Local Registrar	G. McG. Farwell	40	00	150	00
		District Court Clerk	"	231	57	600	00
		Surrogate Registrar	"	135	90	.....	.....
Brant	Brantford	Sheriff	Wm. Watt, Jr.	1,976	63	.....	.....
		Surrogate Judge	Judge Jones	commuted	.....	588	00
		Local Master	"	commuted	.....	577	00
		Crown Attorney	G. R. VanNorman, Q C	596	08	.....	.....
		Clerk of the Peace	"	793	48	.....	.....
		Local Registrar	J. T. Hewitt	60	70	675	00
		County Court Clerk	"	458	15	.....	.....
		Surrogate Registrar	"	1,012	95	.....	.....
Bruce	Walkerton	Sheriff	F. S. O'Connor	2,224	75	.....	.....
		Surrogate Judge	Judge Barrett	605	95	.....	.....
		Local Master	W. A. McLean	commuted	.....	850	00
		Local Registrar	"	commuted	.....	450	00
		Crown Attorney	Thomas Dixon	303	90	.....	.....
		Clerk of the Peace	"	1,543	63	.....	.....
		County Court Clerk	M. Goetz	859	10	.....	.....
		Surrogate Registrar	"	1,071	93	.....	.....
Carleton	Ottawa	Sheriff	John Sweetland	4,416	76	.....	.....
		Surrogate Judge	Judge McTavish	*1,000	00	.....	.....
		Local Master	W. L. Scott	2,029	30	.....	.....
		Deputy Registrar	"	633	05	.....	.....
		Crown Attorney	J. A. Ritchie	738	80	.....	.....

*\$362.05 additional paid Judge Mosgrove.

Province of Ontario, earned and received during the year ending, 31st Dec, 1898.

Total earnings and salary in each office.	Total earnings and salary by officer in all his offices.	Total received for present year's services.	Total received for previous year's services.	Total receipts by officer from all his offices.	Total disbursements.	Net income.	Amount paid to Government under 57 V. c. 9.	Actual net income.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
3,206 79	3,206 79	2,995 27	124 15	3,119 42	1,546 48	1,572 94		1,572 94
98 30	155 20	98 30		155 20		155 20		155 20
56 90		56 90						
122 30	928 70	69 80	225 00	1,158 77	8 00	1,150 77		1,150 77
806 40		677 18	186 79					
190 00	1,157 47	190 00		1,157 47	52 33	1,105 14		1,105 14
831 57		831 57						
135 90		135 90						
	1,976 63	1,912 86	192 34	2,105 20	383 69	1,721 51		1,721 51
588 00	1,165 00			1,165 00	15 00	1,150 00		1,150 00
577 00								
596 08	1,389 56	596 08		1,389 56		1,389 56		1,389 56
793 48		793 48						
735 70	2,206 80	735 70		2,206 80	822 21	1,374 59		1,374 59
458 15		458 15						
1,012 95		1,012 95						
	2,224 75	1,969 84	546 08	2,515 92	850 16	1,665 76		1,665 76
	605 95			605 95		605 95		605 95
	1,300 00			1,300 00	29 70	1,270 30		1,270 30
303 90	1,847 53	254 00	124 40	1,891 80		1,891 80		1,891 80
1,543 63		1,032 45	480 95					
859 10	1,931 03	717 16	159 96	1,986 80	329 25	1,657 55	15 75	1,641 80
1,071 93		665 48	444 20					
	4,416 76	3,532 76	868 54	4,401 30	2,248 55	2,152 75	15 27	2,137 48
	1,000 00			1,000 00				1,000 00
2,029 80	2,662 35	1,962 44	166 91	2,758 91	323 10	2,435 81		2,435 81
633 05		618 85	10 71					
738 80	2,086 84	500 40	369 00	2,098 35	1,040 96	1,057 39		1,057 39

APPENDIX F.—Return of fees and emoluments of County

County or district.	County town.	Office.	Officer.	Amount earned.		Salaries paid by Government.
				\$	c.	
Carleton.— <i>Con.</i>	Ottawa.....	Clerk of the Peace.....	J. A. Ritchie	1,348	04	.....
		Deputy Clerk of the Crown	J. P. Feathe ston....	678	25	450 00
		County Court Clerk ...	"	1,112	60	.....
		Surrogate Registrar....	"	1,870	96	.....
Dufferin	Orangeville....	Sheriff	T. Bowles.....	1,798	95	.....
		Surrogate Judge	Judge McCarthy ...	commuted		168 00
		Local Master.....	"	85	82	.....
		County Attorney.....	W. C. L. McKay... ..	204	05	.....
		Clerk of the Peace.....	"	660	39	.....
		Local Registrar.....	John McLaren .. .	102	15	675 00
		County Court Clerk....	"	250	45	.....
		Surrogate Registrar....	"	425	65	.....
Elgin	St. Thomas....	Sheriff	Dugald Brown	2,180	82	.....
		Surrogate Judge.....	Judge Hughes.....	commuted		681 00
		Local Master	Robert Miller .. .	913	31	.....
		Crown Attorney.....	D. J. Donohue	909	82	.....
		Clerk of the Peace.....	"	1,310	05	.....
		Local Registrar.....	D. McLaws.....	287	95	675 00
		County Court Clerk....	"	670	89	.....
		Surrogate Registrar....	"	826	78	.....
Essex	Sandwich	Sheriff	J. C. Iler	3,372	58	.....
		Surrogate Judge.....	Judge Horne	409	75	.....
		Local Master.....	J. F. Hare	603	75	.....
		Deputy Registrar	"	183	10	.....
		Crown Attorney.	A. H. Clarke.....	614	25	.....
		Clerk of the Peace	"	1,052	08	.....
		Deputy Clerk of the Crown	F. E. Marcon.....	224	55	450 00
		County Court Clerk....	"	640	60	.....
Surrogate Registrar	"	854	38	.....	

Judicial Officers in the Province of Ontario, etc.—*Continued.*

Total earnings and salary in each office.	Total earnings and salary by officer in all his offices.	Total received for present year's services.	Total received for previous years' services.	Total receipts by officer from all his offices.	Total disbursements.	Net income.	Amount paid to Government under 57 V. c. 9.	Actual net income.
£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.
1,348 04	.....	769 64	459 31	.....	.....	.....	.....	.....
1,128 25	4,111 81	1,088 20	45 60	4,111 26	1,102 96	3,008 30	304 15	2,704 15
1,112 60	.....	1,092 50	11 70	.....	.....	.....	.....	.....
1,870 96	.....	1,857 31	15 95	.....	.....	.....	.....	.....
.....	1,798 95	1,244 91	662 74	1,907 65	523 42	1,384 23	.....	1,384 23
168 00	253 82	168 00	.....	231 78	1 50	230 28	.....	230 28
85 82	.....	32 26	31 52	.....	.....	.....	.....	.....
204 05	864 44	166 15	28 30	653 65	190 00	463 65	.....	463 65
660 39	.....	267 60	191 60	.....	.....	.....	.....	.....
777 15	1,453 25	775 15	.....	1,450 65	11 75	1,438 90	.....	1,438 90
250 45	.....	243 65	5 45	.....	.....	.....	.....	.....
425 65	.....	424 40	.....	.....	.....	.....	.....	.....
.....	2,180 82	1,813 75	697 32	2,511 07	993 87	1,517 20	.....	1,517 20
.....	681 00	.....	.....	681 00	.....	681 00	.....	681 00
.....	913 31	292 11	244 40	536 51	104 00	432 51	.....	432 51
909 82	2,219 87	773 12	241 15	2,448 32	287 72	2,160 60	.....	2,160 60
1,310 05	.....	747 78	*686 27	.....	.....	.....	.....	.....
962 95	2,460 52	914 05	125 09	2,499 80	363 40	2,136 40	77 28	2,059 12
670 89	.....	448 19	53 65	.....	.....	.....	.....	.....
826 78	.....	770 41	188 41	.....	.....	.....	.....	.....
.....	3,372 58	2,872 58	300 00	3,172 58	1,475 40	1,696 18	.....	1,696 18
.....	409 75	.....	.....	409 75	.....	409 75	.....	409 75
603 75	786 85	513 05	28 70	716 95	156 00	560 95	.....	560 95
183 10	.....	175 20	.....	.....	.....	.....	.....	.....
614 25	1,666 33	416 58	200 67	1,562 52	600 00	962 52	.....	962 52
1,052 08	.....	159 28	285 99	.....	.....	.....	.....	.....
674 55	2,169 53	674 55	.....	2,169 53	260 00	1,909 53	40 95	1,868 58
640 60	.....	640 60	.....	.....	.....	.....	.....	.....
854 38	.....	854 38	.....	.....	.....	.....	.....	.....

* Of this \$225 was earned before 1895.

APPENDIX F.—Return of fees and emoluments of County

County or district.	County town.	Office.	Officer.	Amount earned.		Salaries paid by Government.
				§	c.	
Frontenac	Kingston.....	Sheriff	William Ferguson...	2,157	35	.....
		Surrogate Judge.....	Judge Price	commuted		752 00
		Local Master	J. M. Machar, Q.C..	353	97	.....
		Crown Attorney	J. L. Whiting, Q.C..	237	00	.....
		Clerk of the Peace.....	" ..	916	15	.....
		Local Registrar	Archibald McGill....	109	15	675 00
		County Court Clerk....	"	434	45	.....
		Surrogate Registrar....	"	827	06	.....
Grey	Owen Sound...	Sheriff	C. H. Moore	2,692	63	.....
		Surrogate Judge	Judge Creasor.....	597	25	.....
		Local Masters.....	{ "	462	71	.....
			{ Judge Morrison ... }			
		Crown Attorney	A. G. MacKay....	628	27	.....
		Clerk of the Peace	Wm. Armstrong	1,333	51	.....
		Local Registrar.....	G. Inglis.....	80	00	750 00
		County Court Clerk....	"	687	75	.....
Surrogate Registrar....	"	1,092	82	.....	
Haldimand	Cayuga	Sheriff	R. H. Davis	1,617	25	100 00
		Surrogate Judge	Judge McMillan	282	75	.....
		Local Master.....	"	330	56	.....
		Crown Attorney	C. W. Colter	491	40	.....
		Clerk of the Peace	"	1,254	13	.....
		Local Registrar.....	James Mitchell.....	117	25	600 00
		County Court Clerk....	"	188	90	.....
		Surrogate Registrar....	"	581	75	.....
Halton	Milton	Sheriff	M. Clements	1,151	74	.....
		Surrogate Judge.....	Judge Hamilton	396	40	.....
		Local Master	"	86	10	.....
		Crown Attorney	T. G. Matheson.....	326	25	.....
		Clerk of the Peace	"	1,611	47	.....

Judicial Officers in the Province of Ontario, etc.—Continued.

Total earnings and salary in each office.	Total earnings and salary by officer in all his offices.	Total received for present year's services.	Total received for previous year's services.	Total receipts by officer from all his offices.	Total disbursements.	Net income.	Amount paid to Government under 47 V. c. 9.	Actual net income.
£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.
.....	2,157 35	2,157 35	.....	2,157 35	740 37	1,416 98	.....	1,416 98
.....	752 00	.....	.....	752 00	.....	752 00	.....	752 00
.....	353 97	175 27	496 13	671 40	100 00	571 40	.....	571 40
237 00	1,153 18	180 00	127 00	1,293 95	100 00	1,193 95	.....	1,193 95
916 15	.....	580 75	406 20	.....	.....	.....	.....	.....
784 15	2,045 66	694 15	46 22	1,985 75	675 00	1,310 75	.....	1,310 75
434 45	.....	381 21	46 23	.....	.....	.....	.....	.....
827 06	.....	633 06	184 88	.....	.....	.....	.....	.....
.....	2,692 63	1,950 41	881 95	2,832 36	843 65	1,988 71	.....	1,988 71
.....	597 25	.....	.....	597 25	.....	597 25	.....	597 25
.....	462 71	322 82	75 48	398 30	3 25	395 05	.....	395 05
.....	628 27	442 27	175 08	617 35	36 50	580 85	.....	580 85
.....	1,333 51	.....	.....	1,333 51	435 00	898 51	.....	898 51
830 00	2,610 57	830 00	.....	2,610 57	1,276 93	1,333 64	.....	1,333 64
687 75	.....	687 75	.....	.....	.....	.....	.....	.....
1,092 82	.....	1,092 82	.....	.....	.....	.....	.....	.....
1,717 25	1,717 25	1,717 25	21 19	1,738 44	268 00	1,470 44	.....	1,470 44
282 75	613 31	282 75	.....	396 91	.....	396 91	.....	396 91
330 56	.....	114 16	.....	.....	.....	.....	.....	.....
491 40	1,745 53	384 90	261 58	1,832 28	332 00	1,500 28	.....	1,500 28
1,254 13	.....	738 99	446 81	.....	.....	.....	.....	.....
717 25	1,497 90	717 25	.....	1,497 90	36 00	1,461 90	.....	1,461 90
198 90	.....	198 90	.....	.....	.....	.....	.....	.....
581 75	.....	581 75	.....	.....	.....	.....	.....	.....
.....	1,151 74	1,100 78	57 63	1,158 41	322 60	835 81	.....	835 81
396 46	482 50	396 40	.....	478 00	2 50	475 50	.....	475 50
86 10	.....	46 10	35 50	.....	.....	.....	.....	.....
326 25	1,937 72	247 05	162 50	1,985 68	120 79	1,864 89	.....	1,864 89
1 611 47	.....	1,112 39	463 74	.....	.....	.....	.....	.....

APPENDIX F.—Return of fees and emoluments of County

County or district.	County town.	Office.	Officer.	Amount earned.		Salaries paid by Government.	
				§	c.	§	c.
Halton.—Con...	Milton	Local Registrar.	W. A. Lawrence	74	30	600	00
		County Court Clerk....	“	153	20	.....	.....
		Surrogate Registrar....	“	612	79	.....	.....
Hastings	Belleville.....	Sheriff	G. F. Hope	3,087	10	.....	.....
		Surrogate Judge.....	Judge Lazier.....	commuted		500	00
		Local Master and Deputy Registrar.....	S. S. Lazier	commuted		3,000	00
		Crown Attorney.	P. J. M. Anderson ..	1,774	75	.....	.....
		Clerk of the Peace.....	“	1,530	16	.....	.....
		Deputy Clerk of the Crown.....	A. G. Northrup	327	80	450	00
		County Court Clerk....	“	870	78	.....	.....
		Surrogate Registrar....	“	926	75	.....	.....
Huron	Goderich	Sheriff	R. G. Reynolds.....	2,172	39	.....	.....
		Surrogate Judge	Judge Masson	*1,000	00	.....	.....
		Local Master	Judge Doyle	340	28	.....	.....
		Crown Attorney	Ira Lewis	546	20	.....	.....
		Clerk of the Peace	“	1,744	85	.....	.....
		Local Registrar	D. McDonald	313	40	750	00
		County Court Clerk....	“	391	05	.....	.....
		Surrogate Registrar....	“	1,710	70	.....	.....
Kent.....	Chatham.....	Sheriff	J. R. Gemmill	2,867	17	.....	.....
		Surrogate Judge	Judge Bell	commuted		450	00
		Local Master and Deputy Registrar	R. O'Hara	commuted		1,600	00
		Crown Attorney	Wm. Douglas, Q.C. . .	1,089	22	.....	.....
		Clerk of the Peace.....	“	1,457	51	.....	.....
		Deputy Clerk of the Crown	W. A. Campbell.....	120	00	450	00
		County Court Clerk....	“	897	40	.....	.....
Surrogate Registrar....	“	997	10	.....	.....

* \$19.25 additional paid Judge Doyle, and for 1897 \$54.70.

Judicial Officers in the Province of Ontario, etc.—Continued.

Total earnings and salary in each office.	Total earnings and salary by officer in all his offices.	Total received for present year's services.	Total received for previous years services.	Total receipts by officer from all his offices.	Total disbursements.	Net income.	Amount paid to Government under 57 V. c. 9.	Actual net income.
£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.
674 30	1,440 29	674 30	.....	1,440 29	£00 00	1,140 29	.....	1,140 29
153 20	.....	153 20	.....	.....	.....	.....	.....	.....
612 79	.....	612 79	.....	.....	.....	.....	.....	.....
.....	3,087 10	2,256 10	464 50	2,720 60	820 78	1,899 82	.....	1,899 82
.....	500 00	.....	.....	500 00	.....	500 00	.....	500 00
.....	3,000 00	.....	.....	3,000 00	550 00	2,450 00	.....	2,450 00
1,774 75	3,304 91	1,365 75	299 00	3,177 77	556 49	2,621 28	74 24	2,547 04
1,530 16	.....	1,044 62	468 40	.....	.....	.....	.....	.....
777 80	2,576 33	677 00	120 00	2,576 00	797 07	1,778 93	27 79	1,751 14
871 78	.....	550 00	300 00	.....	.....	.....	.....	.....
926 75	.....	589 00	340 00	.....	.....	.....	.....	.....
.....	2,172 39	2,004 68	234 37	2,239 05	671 11	1,567 94	.....	1,567 94
.....	1,000 00	.....	.....	1,000 00	.....	1,000 00	.....	1,000 00
.....	340 28	247 72	.....	247 72	10 55	237 17	.....	237 17
546 20	2,291 05	393 74	191 35	2,157 64	780 00	1,377 64	.....	1,377 64
1,744 85	.....	1,213 30	359 25	.....	.....	.....	.....	.....
1,063 40	3,165 15	1,063 40	.....	3,165 15	683 82	2,481 33	146 26	2,335 07
391 05	.....	391 05	.....	.....	.....	.....	.....	.....
1,710 70	.....	1,710 70	.....	.....	.....	.....	.....	.....
.....	2,867 17	2,033 79	387 11	2,420 90	1,122 66	1,298 24	.....	1,298 24
.....	450 00	.....	.....	450 00	.....	450 00	.....	450 00
.....	1,600 00	.....	.....	1,600 00	.....	1,600 00	.....	1,600 00
1,089 22	2,546 73	1,089 22	.....	2,546 73	555 00	1,991 73	.....	1,991 73
1,457 51	.....	1,457 51	.....	.....	.....	.....	.....	.....
570 00	2,464 50	570 00	.....	2,414 50	650 00	1,764 50	26 45	1,738 05
897 40	.....	897 40	.....	.....	.....	.....	.....	.....
997 10	.....	997 10	.....	.....	.....	.....	.....	.....

APPENDIX F.—Report of fees and emoluments of County

County or district.	County town.	Office.	Officer.	Amount earned.		Salary paid by Government.		
				£	c.	£	c.	
Lambton	Sarnia	Sheriff	James Flintoft	2,371	72	.....	.....
		Surrogate Judge	Judge Robinson	482	75	.....	.....
		Local Masters .....	" .....	.....	.....	.....	.....
		Judge Mackenzie		207	65	.....	.....
		County Attorney	J. P. Bucke	881	98	.....	.....
		Clerk of the Peace	"	1,257	90	.....	.....
		Local Registrar	W. R. Gemmill	498	46	673	00	
		County Court Clerk	"	538	49	.....	.....
Surrogate Registrar	"	894	35	.....	.....	
Lanark	Perth	Sheriff	James Thompson	1,652	15	.....	.....
		Surrogate Judge	Judge Senkler	296	20	.....	.....
		Local Master	"	118	81	.....	.....
		Crown Attorney	W. G. Malloch	627	07	.....	.....
		Clerk of the Peace	"	597	96	.....	.....
		Local Registrar	C. Rice	195	50	675	00	
		County Court Clerk	"	262	85	.....	.....
		Surrogate Registrar	"	621	44	.....	.....
Leeds and Grenville	Brockville	Sheriff	G. A. Dana	2,469	21	.....	.....
		Surrogate Judge	Judge McDonald	commuted	600	00	.....
		Local Masters	"	57	70
		Judge Reynolds		603	61	.....	.....
		Crown Attorney	M. M. Brown	651	36	.....	.....
		Clerk of the Peace	"	1,267	16	.....	.....
		Local Registrar	S. Reynolds	218	60	750	00	
		County Court Clerk	"	592	38	.....	.....
Surrogate Registrar	"	1,223	37	.....	.....	
Lennox and Addington	Napanea	Sheriff	G. D. Hawley	1,615	91	.....	.....
		Surrogate Judge	Judge Wilkinson	commuted	400	00	.....
		Local Master	S. S. Lazier	97	30	.....	.....
		Crown Attorney	S. C. Warner	192	80	.....	.....
		Clerk of the Peace	"	792	01	.....	.....

Judicial Officers in the Province of Ontario, etc.—Continued.

Total earnings and salary in each office.	Total earnings and salary by officer in all his offices.	Total received for present year's services.	Total received for previous year's services.	Total receipts by officer from all his offices.	Total disbursements.	Net income.	Amount paid to Government under 57 V. c. 9.	Actual net income.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
.....	2,371 72	2,020 90	830 60	2,851 60	887 16	1,964 34	.....	1,964 34
.....	482 75	.....	.....	482 75	.....	482 75	.....	482 75
.....	207 65	207 65	69 00	276 65	.....	276 65	.....	276 65
881 98	2,139 88	791 88	172 50	2,289 88	391 31	1,898 57	.....	1,898 57
1,257 90	.....	1,222 60	102 90	.....	.....	.....	.....	.....
1,173 46	2,606 30	1,173 46	.....	2,606 30	133 00	2,473 30	144 66	2,328 64
538 49	.....	538 49	.....	.....	.....	.....	.....	.....
894 35	.....	894 35	.....	.....	.....	.....	.....	.....
.....	1,652 15	1,102 44	600 95	1,703 39	461 87	1,241 52	.....	1,241 52
296 20	415 01	296 20	.....	427 95	.....	427 95	.....	427 95
118 81	.....	3 29	128 46	.....	.....	.....	.....	.....
627 07	1,225 03	353 00	246 74	1,045 33	110 94	934 39	.....	934 39
597 96	.....	353 32	92 27	.....	.....	.....	.....	.....
870 50	1,754 79	755 20	62 60	1,775 68	35 30	1,740 38	24 03	1,716 35
262 85	.....	197 35	85 60	.....	.....	.....	.....	.....
621 44	.....	548 63	126 30	.....	.....	.....	.....	.....
.....	2,469 21	1,892 14	620 73	2,512 87	1,191 41	1,321 46	.....	1,321 46
600 00	657 70	600 00	.....	657 70	.....	657 70	.....	657 70
57 70	.....	35 94	21 76	.....	.....	.....	.....	.....
.....	603 61	.....	.....	603 61	.....	603 61	.....	603 61
651 36	1,918 52	651 36	.....	1,918 52	150 00	1,768 52	.....	1,768 52
1,267 16	.....	1,267 16	.....	.....	.....	.....	.....	.....
968 60	2,784 35	968 60	.....	2,784 35	459 96	2,324 39	114 88	2,209 51
592 38	.....	529 38	.....	.....	.....	.....	.....	.....
1,223 37	.....	1,223 37	.....	.....	.....	.....	.....	.....
.....	1,615 91	840 58	304 95	1,145 53	252 34	893 19	.....	893 19
.....	400 00	.....	.....	400 00	.....	400 00	.....	400 00
.....	97 30	64 30	41 30	105 60	25 00	80 60	.....	80 60
192 80	984 81	146 00	58 20	964 36	154 70	809 66	.....	809 66
792 01	.....	516 64	243 52	.....	.....	.....	.....	.....

APPENDIX F.—Return of fees and emoluments of County

County or district.	County town.	Office.	Office.	Amount earned.		Salary paid by Government.	
				£	c.	£	c.
Lennox and Add'n.— <i>Con.</i>	Napanee	Local Registrar	W. P. Deroche	291	70	600	00
		County Court Clerk....	"	369	70		
		Surrogate Registrar....	"	384	15		
Lincoln	St. Catharines.	Sheriff	Thos. C. Dawson	2,533	51		
		Surrogate Judge	Judge Senkler	commuted		566	00
		Local Master.....	F. W. Macdonald	966	68		
		Deputy Registrar.....	"	1,099	44		
		Crown Attorney	M. Brennan	634	00		
		Clerk of the Peace....	"	1,008	30		
		Deputy Clerk of Crown.	Johnson Clench.....	140	00.	450	00
		County Court Clerk....	"	410	34		
		Surrogate Registrar....	"	825	23		
Manitoulin	Gore Bay	Surrogate Judge.....	Judge Johnston	24	00		
		District Court Clerk ...	W. S. Francis	235	05	350	00
		Surrogate Registrar....	"	51	00		
Middlesex	London	Sheriff	D. M. Cameron	4,271	63		
		Surrogate Judge	*Judge Elliott.....	commuted		1,000	00
		Local Master.....	R. K. Cowan.....	1,044	90		
		Deputy Registrar.....	"	824	98		
		Crown Attorney	James McGee, Q.C. . .	1,361	29		
		Clerk of the Peace....	"	1,902	31		
		Deputy Clerk of Crown.	John Macbeth	272	40	500	00
		County Court Clerk....	"	927	60		
Surrogate Registrar....	"	2,429	90				
Muskoka	Bracebridge...	Sheriff	James W. Bettes	1,630	45	500	00
		Surrogate Judge	Judge Mahaffy	47	50		
		Local Master	"				
		County Attorney	Thomas Johnston....	410	91	250	00

* Judge Edward Elliott, \$320.40, surplus Surrogate fees.

Judicial Officers in the Province of Ontario, etc.—Continued.

Total earnings and salary in each office.	Total earnings and salary by officer in all his offices	Total received for present year's services.	Total received for previous year's services.	Total receipts by officer from all his offices.	Total disbursements.	Net income	Amount paid to Government under 57 V. c. c.	Actual net income.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
891 70	1,645 55	891 70	.....	1,645 55	65 15	1,580 40	8 04	1,572 36
369 70	.....	369 70	.....	.....	.....	.....	.....	.....
384 15	.....	384 15	.....	.....	.....	.....	.....	.....
.....	2,553 51	2,315 71	104 82	2,420 53	484 21	1,936 32	.....	1,936 32
.....	566 00	.....	.....	566 00	.....	566 00	.....	566 00
966 68	2,066 12	557 33	456 49	2,090 10	.....	2,090 10	.....	2,090 10
1,099 44	.....	537 33	538 95	.....	.....	.....	.....	.....
634 00	1,642 30	634 00	.....	1,642 30	150 50	1,491 80	.....	1,491 80
1,008 30	.....	1,008 30	.....	.....	.....	.....	.....	.....
590 00	1,825 57	548 45	101 97	1,978 12	196 60	1,781 52	28 15	1,753 37
410 34	.....	359 74	152 18	.....	.....	.....	.....	.....
825 23	.....	814 68	1 10	.....	.....	.....	.....	.....
.....	24 00	.....	.....	24 00	.....	24 00	.....	24 00
585 05	636 05	585 05	.....	636 05	.....	636 05	.....	636 05
51 00	.....	51 00	.....	.....	.....	.....	.....	.....
.....	4,271 63	4,081 41	126 47	4,207 88	1,860 27	2,347 61	34 76	2,312 85
.....	1,000 00	.....	.....	1,000 00	.....	1,000 00	.....	1,000 00
1,044 90	1,869 88	905 30	125 00	1,827 44	344 27	1,483 17	.....	1,483 17
824 98	.....	797 14	.....	.....	.....	.....	.....	.....
1,361 29	3,263 60	953 29	385 50	3,263 11	978 50	2,284 61	28 46	2,256 15
1,902 31	.....	1,387 52	536 80	.....	.....	.....	.....	.....
772 40	4,129 90	731 20	26 75	4,015 90	1,062 60	2,953 30	285 99	2,667 31
927 60	.....	905 70	21 25	.....	.....	.....	.....	.....
2,429 90	.....	2,319 90	11 10	.....	.....	.....	.....	.....
.....	2,130 45	1,700 28	519 89	2,220 17	719 52	1,500 65	.....	1,500 65
.....	47 50	.....	.....	47 50	.....	.....	.....	47 50
.....
660 91	1,316 11	529 31	186 00	1,466 29	392 35	1,073 94	.....	1,073 94

APPENDIX F.—Return of fees and emoluments of County

County or district	County town-	Office.	Officer.	Amount earned.		Salary paid by Government.
				£	c.	
Muskoka.—Con.	Bracebridge...	Clerk of the Peace	Thomas Johnston....	655	20	.....
		Local Registrar.....	Isaac Huber.....	108	35	600 00
		District Court Clerk....	"	62	07	.....
		Surrogate Registrar....	"	150	40	.....
Nipissing	North Bay	Sheriff	H. C. Varin.....	1,777	25	750 00
		Surrogate Judge	Judge Valin	26	50	.....
		Local Master.....	"	13	50	.....
		Crown Attorney	A. G. Browning	336	32	250 00
		Clerk of the Peace....	"	313	66	.....
		Local Registrar.....	Thos. J. Rourke	130	40	150 00
		County Court Clerk....	"	220	65	450 00
		Surrogate Registrar....	"	56	25	.....
Norfolk	Simcoe.....	Sheriff	Joseph Jackson	1,451	99	.....
		Surrogate Judge	Judge Robb	250	00	.....
		Local Master.....	"	1	80	.....
		Crown Attorney.....	J. H. Ansley.....	491	70	.....
		Clerk of the Peace	"	1,093	55	.....
		Local Registrar.....	C. C. Rapelje.....	287	15	675 00
		County Court Clerk....	"	326	80	.....
		Surrogate Registrar....	"	618	39	.....
Northumberland and Durham..	Cobourg	Sheriff.....	I. O. Proctor	3,077	91	.....
		Surrogate Judge	Judge Benson	commuted		840 00
		Local Master.....	J. H. Dumble	510	57	.....
		Crown Attorney	J. W. Kerr.....	656	60	.....
		Clerk of the Peace....	"	1,279	40	.....
		Local Registrar.....	John Fisher	276	70	750 00
		County Court Clerk....	"	542	95	.....
Surrogate Registrar....	"	1,397	07	.....	

Judicial Officers in the Province of Ontario, etc.—*Continued.*

Total earnings and salary in each office.	Total earnings and salary by officer in all his offices.	Total received for present year's services.	Total received for previous year's services.	Total receipts by officer from all his offices.	Total disbursements.	Net income.	Amount paid to Government under 57 V. c. 9.	Actual net income.
£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.
655 20		480 77	270 21					
708 35	920 82	708 35		920 82	8 75	912 07		912 07
62 07		62 07						
150 40		150 40						
	2,527 25	2,224 50	684 75	2,909 25	1,841 37	1,067 88		1,067 88
26 50	40 00			40 00		40 00		40 00
13 50								
586 32	899 98	390 60	123 36	799 20	118 35	680 85		680 85
313 66		179 54	105 70					
280 40	1,007 30	280 40		1,007 30	53 70	953 60		953 60
670 65		670 65						
56 25		56 25						
	1,451 99	1,051 99	563 57	1,615 86	193 43	1,422 43		1,422 43
250 00	251 80	250 00		251 80		251 80		251 80
1 80		1 80						
491 70	1,585 25	491 70		1,370 93	37 46	1,333 47		1,333 47
1,093 55		876 43	2 80					
962 15	1,907 34	825 85	62 35	1,713 04	57 40	1,655 64	15 56	1,640 08
326 80		253 60	52 65					
618 39		400 94	117 65					
	3,077 91	2,267 39	693 45	2,960 84	1,269 75	1,291 09		1,291 09
	840 00			840 00		840 00		840 00
	510 57	265 30		265 30		265 30		265 30
656 60	1,936 00	528 10	249 52	1,998 05	348 35	1,649 70		1,319 70
1,279 40		832 82	387 61					
1,036 70	2,966 72	2,966 72		2,966 72	614 00	2,352 72	120 40	2,232 32
542 95								
1,397 07								

APPENDIX F.—Return of fees and emoluments of County

County or district.	County town.	Office.	Officer.	Amount earned.	
				\$ c.	\$ c.
Ontario	Whitby	Sheriff	J. F. Paxton	1,595	57
		Surrogate Judge	Judge Dartnell	520	75
		Local Master	"	159	33
		Crown Attorney	J. E. Farewell, Q.C.	522	88
		Clerk of the Peace	"	1,276	12
		Local Registrar	L. T. Barclay	47	00
		County Court Clerk	"	448	00
		Surrogate Registrar	"	753	90
Oxford	Woodstock	Sheriff	James Brady	2,162	31
		Surrogate Judge	Judge Finkle	847	00
		Local Master	W. T. McMullen	887	74
		Deputy Registrar	"	205	50
		Crown Attorney	F. R. Ball, Q.C.	462	20
		Clerk of the Peace	"	875	91
		Deputy Clerk of Crown.	James Canfield	351	90
		County Court Clerk	"	650	35
Surrogate Registrar	"	1,556	75		
Parry Sound	Parry Sound	Sheriff	Samuel Armstrong	1,324	20
		Surrogate Judge	Judge McCurry	24	00
		Local Master	"		
		Crown Attorney	Walter L. Haight	134	77
		Clerk of the Peace	"	257	23
		Local Registrar	E. Jordan	20	35
		District Court Clerk	"	7	70
		Surrogate Registrar	"	61	63
Peel	Brampton	Sheriff	Robert Broddy	2,112	60
		Surrogate Judge	Judge McGibbon	320	90
		Local Master	"	100	25

Judicial Officers in the Province of Ontario, etc.—Continued.

Total earnings and salary in each office.	Total earnings and salary by officer in all his offices.	Total received for present year's services.	Total received for previous year's services.	Total receipts by officer from all his offices.	Total disbursements.	Net income.	Amount paid to Government under 57 V. c. 9.	Actual net income.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
.....	1,595 57	1,051 75	445 74	1,497 49	329 63	1,167 87	.....	1,167 87
520 75	680 08	520 75	.....	715 08	10 00	735 08	.....	735 08
159 33	.....	159 33	65 00	.....	.....	.....	.....	.....
522 88	1,799 00	441 83	111 00	1,872 01	393 19	1,478 82	.....	1,478 82
1,276 12	.....	838 71	480 47	.....	.....	.....	.....	.....
722 00	1,923 90	722 00	.....	1,923 90	240 00	1,683 90	18 40	1,665 50
448 00	.....	448 00	.....	.....	.....	.....	.....	.....
753 90	.....	753 90	.....	.....	.....	.....	.....	.....
.....	2,162 31	2,047 84	229 74	2,277 58	1,035 70	1,241 88	.....	1,241 88
.....	847 00	.....	.....	847 00	.....	847 00	.....	847 00
887 74	1,093 24	367 11	341 36	928 54	104 00	824 54	.....	824 54
205 50	.....	205 50	14 57	.....	.....	.....	.....	.....
462 20	1,338 11	436 70	175 20	1,494 22	5 81	1,488 41	.....	1,488 41
875 91	.....	541 65	340 67	.....	.....	.....	.....	.....
801 00	3,008 10	669 00	193 00	3,001 15	247 25	2,753 90	226 17	2,527 73
650 35	.....	476 25	127 00	.....	.....	.....	.....	.....
1,556 75	.....	937 50	598 40	.....	.....	.....	.....	.....
.....	1,824 20	1,499 10	498 47	1,997 57	851 20	1,146 37	.....	1,146 57
24 00	24 00	.....	.....	24 00	.....	24 00	.....	24 00
347 10	604 33	347 10	.....	458 61	66 66	391 95	.....	391 95
257 23	.....	111 51	.....	.....	.....	.....	.....	.....
620 35	689 68	689 63	.....	689 68	12 11	677 37	.....	677 57
7 70	.....	.....	.....	.....	.....	.....	.....	.....
61 63	.....	.....	.....	.....	.....	.....	.....	.....
.....	2,112 60	1,646 00	396 16	2,042 16	1,105 22	936 94	.....	936 94
320 90	421 15	320 90	.....	434 35	.....	434 35	.....	434 35
100 25	.....	70 25	43 20	.....	.....	.....	.....	.....

APPENDIX F.—Return of fees and emoluments of County

County or district.	County town.	Office.	Officer.	Amount earned.		Salary paid by Government.
				£	s. c.	£	s. c.
Peel.— <i>Con.</i>	Brampton	Crown Attorney.	W. H. McFadden . .	729	35	.....
		Clerk of the Peace.	“	1,714	21	.....
		Local Registrar.	J. A. Austin.	221	80	600 00
		County Court Clerk.	“	318	33	.....
		Surrogate Registrar.	“	660	61	.....
Perth'	Stratford.	Sheriff	John Hossie.	2,295	14	.....
		Surrogate Judge.	Judge Barron	commuted		873 00
		Local Master.	“	177	00	.....
		Crown Attorney	J. Idington, Q.C	380	10	.....
		Clerk of the Peace.	“	1,581	55	.....
		Local Registrar	James Macfadden	632	00	675 00
		County Court Clerk.	“	563	50	.....
Peterborough.	Peterborough.	Sheriff	J. A. Hall	1,979	78	.....
		Surrogate Judge.	Judge Weller	296	00	.....
		Local Master.	“	426	90	.....
		Crown Attorney.	R. E. Wood.	614	72	.....
		Clerk of the Peace.	“	1,009	76	.....
		Local Registrar.	John Maloney.	136	00	675 00
		County Court Clerk.	“	343	00	.....
Prescott and Russell	L'Original	Surrogate Registrar.	“	551	23	.....
		Sheriff	Albert Hagar	1,343	75	500 00
		Surrogate Judge.	Judge O'Brian	124	00	.....
		Local Master	“	58	07	.....
		Crown Attorney.	John Maxwell	132	84	.....
		Clerk of the Peace.	“	970	67	.....
		Local Registrar.	John Fraser.	124	00	675 00
County Court Clerk.	“	201	44	.....	
Surrogate Registrar.	“	343	52	.....	

Judicial Officers in the Province of Ontario, etc.—Continued.

Total earnings and salary in each office.		Total earnings and salary by officer in all his offices.		Total received for present year's services.		Total received for previous year's services.		Total receipts by officer from all his offices.		Total disbursements.		Net income.		Amount paid to Government under 57 V. c. 9.		Actual net income.	
£	c.	£	c.	£	c.	£	c.	£	c.	£	c.	£	c.	£	c.	£	c.
729	35	2,443	56	532	35	235	45	2,442	44	162	73	2,279	71	27	97	2,251	74
1,714	21	.....	.....	1,381	79	292	85	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
321	80	1,800	74	807	00	.....	.....	1,785	13	196	67	1,588	46	8	85	1,579	61
318	33	.....	.....	311	25	18	35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
660	61	.....	.....	627	75	20	78	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	2,295	14	1,832	85	728	03	2,560	88	1,080	54	1,480	34	.....	.....	1,480	34
873	00	1,050	00	873	00	.....	.....	976	25	15	00	961	25	.....	.....	961	25
177	00	.....	.....	103	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
380	10	1,961	65	275	10	84	70	1,336	20	401	98	934	22	.....	.....	934	22
1,581	55	.....	.....	638	04	338	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1,307	00	3,300	00	1,215	90	.....	.....	3,070	60	1,190	65	1,879	95	37	99	1,841	96
563	50	.....	.....	438	90	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1,429	50	.....	.....	1,415	80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	1,979	78	1,939	92	29	56	1,969	48	702	85	1,266	63	.....	.....	1,266	63
296	00	722	90	296	00	.....	.....	722	90	.....	.....	722	90	.....	.....	722	90
426	90	.....	.....	426	90	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
614	72	1,624	48	398	22	142	31	1,542	25	40	80	1,501	45	.....	.....	1,501	45
1,009	76	.....	.....	603	12	398	60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
811	00	1,705	23	811	00	.....	.....	1,705	23	289	00	1,416	23	.....	.....	1,416	23
343	00	.....	.....	343	00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
551	23	.....	.....	551	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1,843	75	1,843	75	1,266	64	543	15	1,809	79	797	69	1,012	10	.....	.....	1,012	10
124	00	182	07	124	00	.....	.....	155	40	.....	.....	155	40	.....	.....	155	40
58	07	.....	.....	.....	.....	31	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
132	84	1,103	51	132	84	.....	.....	1,103	51	26	00	1,077	51	.....	.....	1,077	51
970	67	.....	.....	970	67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
799	00	1,343	96	717	90	60	00	1,230	12	225	60	1,004	52	.....	.....	1,004	52
201	44	.....	.....	186	85	23	00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
343	52	.....	.....	176	37	66	00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

APPENDIX F—Return of fees and emoluments of County

County or district.	County town.	Office.	Officer.	Amount earned.		Salary paid by Government.	
				\$	c.	\$	c.
Prince Edward	Picton	Sherif	Jas. Gillespie.....	1,285	83		
		Surrogate Judge .. .	Judge Merrill	233	00		
		Local Master.....	C. H. Widdifield	269	20		
		Crown Attorney.....	J. Roland Brown	231	50		
		Clerk of the Peace. . .	" .. .	780	78		
		Local Registrar	W. H. R. Allison, Q.C				600 00
		County Court Clerk ...	" .. .	404	75		
		Surrogate Registrar....	" .. .	558	47		
Rainy River	Rat Portage ..	Sherif	W. H. Carpenter....	1,934	83	1,000	00
		Surrogate Judge	Judge Chapple	48	50		
		Local Master	"				
		District Crown Attorney	H. Langford	223	15	250	00
		Clerk of the Peace.....	"	252	00		
		Local Registrar.....	F. J. Apjohn.....	183	30		
		District Court Clerk... .	"	204	30	700	00
Surrogate Registrar....	"	76	98				
Renfrew	Pembroke.....	Sherif	Wm. Moffatt.....	2,471	15		
		Surrogate Judge.	Judge Deacon.....	commuted		264	00
		Local Master.....	"	57	35		
		Crown Attorney	J. H. Metcalf	541	00		
		Clerk of the Peace.....	"	741	53		
		Local Registrar.....	Arch. Thomson.....	94	05	600	00
		County Court Clerk... .	"	465	27		
Surrogate Registrar....	"	402	35				
Simcoe	Barrie	Sherif	Hon. Chas. Drury....	3,127	85		
		Surrogate Judge.....	Judge Ardagh	commuted		585	00
		Local Master.....	J. R. Cotter.....	229	50		

Judicial Officers in the Province of Ontario, etc.—Continued.

Total earnings and salary in each office.	Total earnings and salary by officer in all his offices.	Total received for present year's services.	Total received for previous year's services.	Total receipts by officer from all his offices.	Total disbursements.	Net inc me.	Amount paid to Government under 57 V. c. 9.	Actual net income.
£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.
1,485 83	1,485 83	1,314 56	216 29	1,530 85	932 70	598 15	.....	598 15
.....	233 00	.....	.....	233 00	.....	.....	.....	233 00
.....	269 20	92 30	96 35	188 65	75 00	113 65	.....	113 65
231 50	1,012 28	133 00	69 00	995 50	49 60	945 90	.....	945 90
780 78	.....	498 81	244 69	.....	.....	.....	.....	.....
600 00	1,563 22	600 00	.....	1,563 22	63 50	1,499 72	.....	1,499 72
404 75	.....	404 75	.....	.....	.....	.....	.....	.....
£58 47	.....	558 47	.....	.....	.....	.....	.....	.....
.....	2,934 83	2,559 03	523 34	3,085 37	1,130 53	1,954 84	.....	1,954 84
.....	48 50	.....	.....	48 50	.....	48 50	.....	48 50
.....
473 15	725 15	473 15	.....	725 15	8 00	717 15	.....	717 15
252 00	.....	252 00	.....	.....	.....	.....	.....	.....
183 30	1,164 58	183 30	.....	1,164 58	.....	1,164 58	.....	1,164 58
904 30	.....	904 30	.....	.....	.....	.....	.....	.....
76 98	.....	76 98	.....	.....	.....	.....	.....	.....
.....	2,471 15	2,454 28	21 45	2,475 73	748 70	1,727 03	.....	1,727 03
264 00	321 35	.....	.....	321 35	.....	321 35	.....	321 35
57 35	.....	.....	.....	.....	.....	.....	.....	.....
541 00	1,282 53	529 00	41 00	1,368 68	77 05	1,291 63	.....	1,291 63
741 53	.....	510 62	288 06	.....	.....	.....	.....	.....
694 05	1,561 67	694 05	.....	1,561 67	167 05	1,394 62	.....	1,394 62
465 27	.....	465 27	.....	.....	.....	.....	.....	.....
402 35	.....	402 35	.....	.....	.....	.....	.....	.....
.....	3,127 85	3,027 43	730 16	3,757 59	1,802 95	1,954 64	.....	1,954 64
.....	585 00	.....	.....	585 00	.....	585 00	.....	585 00
229 50	3,819 28	229 50	.....	3,074 86	377 82	2,697 04	*16 44	2,680 60

* Payable only on income of joint offices of Crown Attorney and Clerk of the Peace, \$2,164 43.

APPENDIX F.—Return of fees and emoluments of County

County or district.	County town.	Office.	Officer.	Amount earned.	Salary paid (by Government.
				£ c.	£ c.
Simcoe.—Con...	Barrie	Deputy Registrar	J. R. Cotter	303 11	.....
		Crown Attorney.....	“	1,156 50	.....
		Clerk of the Peace.....	“	1,630 17	.....
		Deputy Clerk of Crown	J. McL. Stevenson..	185 20	500 00
		County Court Clerk....	“	806 04	.....
		Surrogate Registrar ...	“	1,227 75	.....
Stormont, Dundas and Glengarry	Cornwall	Sheriff	A. McNab	2,910 40	.....
		Surrogate Judge	Judge Pringle	551 25	.....
		Local Master	“	352 38	.....
		Crown Attorney	Jas. Dingwall.....	353 46	.....
		Clerk of the Peace	“	989 21	.....
		Local Registrar.....	John A. McDougald.	145 50	750 00
		County Court Clerk....	“	510 10	.....
		Surrogate Registrar....	Helen McDonald...	845 25	.....
Thunder Bay ..	Port Arthur ..	Sheriff	Alex. W. Thompson.	1,544 72	1,000 00
		Surrogate Judge.....	Judge Fitzgerald...	71 25	.....
		Local Master	“	16 00	.....
		District Crown Attorney	Thos. A. Gorham...	181 10	250 00
		Clerk of the Peace.....	“	83 04	.....
		Local Registrar.....	Jas. Meek	305 35	600 00
		County Court Clerk....	“	258 15	.....
		Surrogate Registrar ...	“	70 29	.....
Victoria	Lindsay	Sheriff	John McLennan	1,740 16	.....
		Surrogate Judge.....	Judge Dean	commuted	500 00
		Local Master.....	“	commu.ed	900 00
		Crown Attorney.....	A. P. Devlin.....	363 85	.....
		Clerk of the Peace	“	663 33	.....
		Local Registrar.....	Wm Grace.....	127 30	675 00
		County Court Clerk....	“	314 60	.....
Surrogate Registrar....	“	450 95	.....	

Judicial Officers in the Province of Ontario, etc.—Continued.

Total earnings and salary in each office.	Total earnings and salary by officer in all his offices.	Total received for present year's services.	Total received for previous year's services.	Total receipts by officer from all his offices.	Total disbursements.	Net income.	Amount paid to Government under 57 V. c. 9.	Actual net income.
£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.
303 11		303 11						
1,166 50		1,137 80						
1,630 17		1,404 45						
685 20	2,718 99	685 20		2,718 99	420 00	2,298 99	109 79	2,189 20
806 04		806 04						
1,227 75		1,227 75						
	2,910 40	2,531 01	149 82	2,680 83	1,451 06	1,229 77		1,229 77
551 25	903 63	551 25		884 60	09	884 51		884 51
352 38		333 35						
353 46	1,342 67	270 50	102 13	1,240 98	150 63	1,090 35		1,090 35
989 21		631 27	237 08					
895 50	1,405 60	895 50		1,405 60	15 00	1,390 60		1,390 60
510 10		510 10						
	845 25	845 25		845 25	3 00	842 25		842 25
	2,544 72	2,107 92	351 07	2,458 99	623 22	1,835 77		1,835 77
71 25	87 25	71 25		93 65		93 65		93 65
16 00		16 00	6 40					
431 10	514 14	431 10	55 40	624 79	39 55	585 24		585 24
83 04		83 04	55 25					
905 35	1,253 79	747 16	62 86	1,098 86	33 45	1,065 41		1,065 41
258 15		209 05	9 50					
70 29		70 29						
	1,740 16	1,354 46	567 75	1,922 21	515 90	1,406 91		1,406 91
500 00	1,400 00			1,400 00		1,400 00		1,400 00
900 00								
368 85	1,032 18	206 05	146 00	1,062 72		1,062 72		1,062 72
663 33		482 04	228 63					
802 30	1,567 85	745 60	37 60	1 490 89	40 00	1,450 89		1,450 89
314 60		219 00	73 04					
450 95		363 25	52 40					

APPENDIX F.—Return of fees and emoluments of County

County or district.	County town.	Office.	Officer.	Amount earned.		Salary paid by Government.	
				\$	c.	\$	c.
Waterloo	Berlin	Sheriff	Moses Springer.....	1,743	90	100	00
		Surrogate Judge	Judge Chisholm	680	75		
		Local Master	J. J. A. Weir	169	40		
		Crown Attorney	W. H. Bowlby, Q.C..	418	30		
		Clerk of the Peace.....	"	1,276	35		
		Local Registrar	John McDougall ...	228	75	1,075	00
		County Court Clerk....	"	412	45		
		Surrogate Registrar....	A. J. Peterson	1,017	86		
Welland	Welland	Sheriff	James Smith	1,847	53		
		Surrogate Judge.	Judge Fitzgerald	409	45		
		Local Master.....	"	123	90		
		Crown Attorney	T. D. Cowper	469	35		
		Clerk of the Peace.....	"	1,347	15		
		Local Registrar.....	I. P. Wilson	123	20	600	00
		County Court Clerk....	"	343	45		
		Surrogate Registrar....	"	841	03		
Wellington	Guelph.....	Sheriff	R. McKim	2,015	17		
		Surrogate Judge.....	Judge Chadwick ...*	1,000	00		
		Crown Attorney.....	H. W. Peterson.....	833	44		
		Clerk of the Peace.....	"	2,079	54		
		Local Master.....	A. M. McKinnon....	1,484	52		
		Local Registrar.....	"	140	37	750	00
		County Court Clerk....	Wm. Carroll	523	70		
		Surrogate Registrar....	Alex. Mackenzie ...	1,415	44		
Wentworth	Hamilton	Sheriff	John H. Murton	3,200	11		
		Surrogate Judge	Judge Snider	†1,175	50		
		Local Master and Deputy Registrar.....	J. E. O'Reilly	commuted		3,500	00

* 194.75 surplus fees paid Judge Jamieson.

† 8567.50, surplus fees paid Judge Monck.

Judicial Officers in the Province of Ontario, etc.—Continued.

Total earnings and salary in each office.	Total earnings and salary by officer in all his offices.	Total received for present year's services.	Total received for previous year's services.	Total receipts by officer from all his offices.	To 1 d sources.	Net income.	Amount paid to Government under 57 V. c. 9.	Actual net income.
₹ c.	₹ c.	₹ c.	₹ c.	₹ c.	₹ c.	₹ c.	₹ c.	₹ c.
.....	1,843 90	1,789 38	157 41	1,946 79	739 34	1,207 45	.....	1,207 45
.....	680 75	.....	.....	680 75	.....	680 75	.....	680 75
.....	169 40	156 45	2 30	158 75	9 05	149 70	.....	149 70
418 30	1,694 65	321 10	94 60	1,692 55	400 00	1,292 55	.....	1,292 55
1,276 35	.....	1,232 35	44 50	.....	.....	.....	.....	.....
1,303 75	1,716 20	1,303 75	.....	1,716 20	311 45	1,404 75	.....	1,404 75
412 45	.....	412 45	.....	.....	.....	.....	.....	.....
.....	1,017 86	.....	.....	1,017 86	400 00	617 86	.....	617 86
.....	1,847 53	1,422 28	337 95	1,760 23	605 60	1,154 63	.....	1,154 63
409 45	533 35	409 45	.....	580 85	.....	580 85	.....	580 85
123 90	.....	97 80	73 60	.....	.....	.....	.....	.....
469 35	1,817 50	333 35	79 40	1,706 52	634 55	1,071 97	.....	1,071 97
1,347 15	.....	822 88	470 89	.....	.....	.....	.....	.....
723 20	1,907 68	697 60	28 30	1,910 58	296 10	1,614 48	11 44	1,603 04
343 45	.....	322 95	22 30	.....	.....	.....	.....	.....
841 93	.....	837 93	1 50	.....	.....	.....	.....	.....
.....	2,015 17	1,959 65	142 41	2,102 06	1,306 80	795 26	.....	795 26
.....	1,000 00	.....	.....	1,000 00	.....	1,000 00	.....	1,000 00
833 44	2,912 98	598 75	184 00	2,657 43	776 00	1,881 43	.....	1,881 43
2,097 54	.....	1,794 38	80 30	.....	.....	.....	.....	.....
1,484 52	2,374 89	1,127 38	163 61	2,181 36	247 10	1,934 26	.....	1,934 26
890 37	.....	890 37	.....	.....	.....	.....	.....	.....
.....	523 70	521 30	3 25	524 55	7 20	517 35	.....	517 35
.....	1,415 44	1,415 44	45 13	1,460 57	175 00	1,285 57	.....	1,285 57
.....	3,200 11	2,928 18	269 02	3,137 20	1,723 00	1,414 20	.....	1,414 20
.....	1,175 50	.....	.....	1,175 50	.....	1,175 50	.....	1,175 50
.....	3,500 00	.....	.....	3,500 00	200 00	3,300 00	.....	3,300 00

APPENDIX F.—Return of fees and emoluments of County

County or district.	County town.	Office.	Officer.	Amount earned.		Salary paid by Government.
				\$	c.	
Wentworth.— <i>Continued.</i>	Hamilton	Crown Attorney.....	John Clerar, Q.C....	1,384	38	.....
		Clerk of the Peace	"	1,032	55	.....
		Deputy Clerk of Crown.	S. H. Ghent.....	361	50	500 00
		County Court Clerk....	"	1,293	40	.....
		Surrogate Registrar....	"	2,252	70	.....
York	Toronto	Sheriff	J. H. Widdifield	6,100	05	.....
		Surrogate Judge.....	Judge McDougall	2,900	75	.....
		"	Judge Morgan			666 00
		"	Judge Morson			666 00
		Crown Attorney	H. H. Dewart	3,248	23	.....
		Clerk of the Peace	T. H. Bull	4,276	86	.....
		Surrogate Registrar....	Jos. Tait.....	4,476	28	.....
	County Court Clerk....	Hon. A. M. Ross	4,602	85	.....
Toronto	Toronto .. .	Sheriff	Fred W. Mowat.....	7,840	87	.....
		Crown Attorney.....	J. W. Curry	4,071	00	.....

* Of this \$6.30 was earned before 1893.

Judicial Officers in the Province of Ontario, etc.—Continued.

Total earnings and salary in each office.	Total earnings and salary by officer in all his offices.	Total received for present year's services.	Total received for previous year's services.	Total received by officer from all his offices.	Total disbursements.	Net income.	Amount paid to Government under 57 V. c. 9.	Actual net income.
£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.
1,384 33	2,416 93	1,334 33	.....	2,416 93	530 00	1,886 93	.....	1,886 93
1,032 55	.....	1,032 55	.....	.....	.....	.....	.....	.....
861 50	4,407 60	826 93	45 15	4,335 71	797 55	3,538 16	569 08	2,969 06
1,293 40	.....	1,131 35	160 31	.....	.....	.....	.....	.....
2,252 70	.....	2,042 42	129 58	.....	.....	.....	.....	.....
.....	6,100 05	4,945 42	*1,347 05	6,292 47	2,867 68	3,424 79	275 54	3,149 25
.....	2,900 75	.....	.....	2,900 75	.....	2,900 75	.....	2,900 75
666 00	.....	.....	.....	666 00	.....	666 00	.....	666 00
666 00	.....	.....	.....	666 00	.....	666 00	.....	666 00
.....	3,248 23	2,619 63	1,662 10	3,681 73	897 50	2,784 23	106 84	2,677 39
.....	4,276 86	3,038 45	1,142 14	4,180 59	1,184 21	2,996 38	149 27	2,847 11
.....	4,476 28	4,476 28	.....	4,476 28	1,261 79	3,214 49	407 25	2,807 24
.....	4,602 85	4,569 12	15 00	4,584 12	1,376 24	3,207 88	422 51	2,785 37
.....	7,840 87	6,011 77	1,604 13	7,615 90	4,370 59	3,245 31	223 59	3,021 72
.....	4,071 00	2,953 00	856 00	3,809 00	436 00	3,373 00	261 90	3,111 10

APPENDIX G.—Showing total and net receipts of officers in 1898, and the earnings

County or district.	County town.	Office.	Officer.
Algoma	Sault Ste. Marie....	Sheriff	W. H. Carney
		Surrogate Judge.....	Judge Johnston
		Local Master	"
		District Crown Attorney.....	J. J. Kehoe
		Clerk of the Peace	"
		Local Registrar	G. McG. Farwell
		District Court Clerk	"
		Surrogate Registrar	"
Brant	Bratford	Sheriff	Wm. Watt, jr.
		Surrogate Judge	Judge Jones
		Local Master.....	"
		Crown Attorney	G. R. VanNerman, Q.C.....
		Clerk of the Peace	"
		Local Registrar.....	J. T. Hewitt
		County Court Clerk	"
		Surrogate Registrar.	"
Bruce	Walkerton	Sheriff	F. S. O'Connor.....
		Surrogate Judge.....	Judge Barrett
		Local Master and Local Registrar	W. A. McLean
		Crown Attorney	Thomas Dixon
		Clerk of the Peace	"
		County Court Clerk.....	Matthew Goetz.. ..
		Surrogate Registrar.....	"
		Carleton	Ottawa .....	Sheriff .....	John Sweetland .....
Surrogate Judge	Judge Ross.....		
Local Master.....	W. L. Scott		

each officer payable by the Government, the County, and the general public respectively.

Total receipts.	Net receipts.	From Government.	From County.	From general public.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
3,119 42	1,572 94	*2,371 27		835 52
98 30	98 30			98 30
56 90	56 90			56 90
1,158 77	1,150 77	122 30		
		†806 40		
1,157 47	1,105 14	150 00		40 00
		600 00		231 57
				135 90
2,105 20	1,721 50	1,039 71	435 53	501 39
	commuted at	588 00		
	commuted at	577 00		
1,389 56	1,389 56	391 60	204 48	
		164 30	629 18	
2,206 80	1,374 59	675 00		60 70
				458 15
				1,012 95
2,515 92	1,665 76	815 00	631 05	978 70
605 95	605 95			605 95
	commuted at	1,300 00		
1,891 80	1,891 80		9 00	5 00
		374 88	1,159 25	9 50
1,986 80	1,657 55			859 10
				1,071 93
4,401 30	2,152 75	1,660 65	781 85	1,974 36
‡1,000 00	1,000 00			1,362 05
2,758 91	2,435 81			2,029 30

* This includes \$1,000.00 salary.

† This includes \$400.00 salary.
Judge Mosgrove.

‡ \$362.05 paid in addition to

APPENDIX G.—Showing total and net receipts of

County or district.	County town.	Office.	Officer.
Carleton—Con	Ottawa	Deputy Registrar	W. L. Scott
		Crown Attorney	J. A. Ritchie
		Clerk of the Peace	"
		Deputy Clerk of Crown	J. P. Featherston
		County Court Clerk	"
		Surrogate Registrar	"
Dufferin	Orangeville	Sheriff	Thomas Bowles
		Surrogate Judge	Judge McCarthy
		Local Master	"
		Crown Attorney	W. J. L. McKay
		Clerk of the Peace	"
		Local Registrar	John McLaren
		County Court Clerk	"
Surrogate Registrar	"		
Elgin	St. Thomas	Sheriff	Dugald Brown
		Surrogate Judge	Judge Hughes
		Local Master	Robert Miller
		Crown Attorney	D. J. Donahue
		Clerk of the Peace	"
		Local Registrar	David McLaws
		County Court Clerk	"
		Surrogate Registrar	"
Essex	Sandwich	Sheriff	J. C. Iler
		Surrogate Judge	Judge Horne
		Local Master	J. F. Hare
		Deputy Registrar	"
		Crown Attorney	A. H. Clarke
		Clerk of the Peace	"
		Deputy Clerk of Crown	F. E. Marcon

officers for 1898, earnings and sources from which derived, etc.—*Continued.*

Total receipts.	Net receipts.	From Government.	From County.	From general public.
§ c	§ c.	§ c.	§ c.	§ c.
				633 05
2,098 35	1,057 39	738 80		409 85
		365 85	572 64	678 25
4,111 26	3,008 30	450 00		1,112 60
				1,870 96
1,907 65	1,384 23	897 15	376 04	520 76
	commuted	168 00		
63 78	62 28			85 82
653 65	463 65	204 05		
		207 15	416 24	37 00
1,450 65	1,438 90	675 00		102 15
				250 45
				425 65
2,511 07	1,517 20	1,403 01	354 74	423 07
	commuted	681 00		
536 51	432 51			913 31
2,448 32	2,160 60	909 82		
		673 89	636 16	
2,499 80	2,136 40	675 00		287 95
				670 89
				826 78
3,172 58	1,696 18	1,584 30	534 27	1,254 01
409 75	409 75			409 75
716 95	560 95			603 75
				183 10
1,562 52	962 52	508 97	4 28	101 00
		190 10	595 03	266 95
2,169 53	1,909 53	450 00		224 55

APPENDIX G.—Showing total and net receipts of

County or district.	County town.	Office.	Officer.
Essex.—Continued ..	Sandwich	County Court Clerk	F. E. Marcon
		Surrogate Registrar	“
Frontenac	Kingston	Sheriff	Wm. Ferguson
		Surrogate Judge	Judge Price
		Local Master	J. M. Machar, Q.C.
		Crown Attorney	J. L. Whiting, Q.C.
		Clerk of the Peace	“
		Local Registrar	Archibald McGill.
		County Court Clerk	“
		Surrogate Registrar	“
Grey	Owen Sound	Sheriff	C. H. Moore
		Surrogate Judge	Judge Creasor
		Local Masters	{ “
			{ Judge Morrison
		Crown Attorney	A. G. McKay
		Clerk of the Peace	Wm. Armstrong
		Local Registrar	George Inglis
		County Court Clerk	“
Surrogate Registrar	“		
Haldimand	Cayuga	Sheriff	R. H. Davis
		Surrogate Judge	Judge McMillan
		Local Master	“
		Crown Attorney	C. W. Colter
		Clerk of the Peace	“
		Local Registrar	James Mitchell
		County Court Clerk	“
Surrogate Registrar	“		

officers for 1898, earnings and sources from which derived, etc.—*Continued.*

Total receipts.	Net receipts.	From Government.	From County.	From general public.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
				640 60
				954 38
2,157 35	1,416 98	1,079 29	466 42	611 64
	commuted	752 00		
671 40	571 40			353 97
1,293 95	1,193 95	307 00		
		142 00	774 15	
1,985 75	1,310 75	675 00		109 15
				434 45
				827 06
2,832 36	1,988 71	1,106 31	789 32	797 00
597 25	597 25			597 25
398 30	395 05			462 71
617 35	580 85	206 37	412 73	9 17
1,333 51	898 51	973 17	230 48	129 86
2,610 57	1,276 93	750 00		80 00
				687 75
				1,092 82
1,738 44	1,470 44	1,066 36	402 53	248 36
396 91	396 91			282 75
				330 56
1,832 28	1,500 28	465 77	25 63	
		162 38	941 49	150 26
1,497 50	1,461 90	600 00		117 25
				198 90
				581 75

*Of this \$100 is salary.

APPENDIX G.—Showing the total and net receipts of

County or district.	County town.	Office.	Officer.
Halton.....	Milton	Sheriff	M. Clements
		Surrogate Judge.....	Judge Hamilton
		Local Master	“
		Crown Attorney	T. G. Matheson.....
		Clerk of the Peace.....	“
		Local Registrar.....	W. A. Lawrence
		County Court Clerk.....	“
		Surrogate Registrar.....	“
Hastings	Belleville.....	Sheriff	Geo. F. Hope.....
		Surrogate Judge.....	Judge Lazier.....
		Local Master and Deputy } Registrar.	S. S. Lazier
		Crown Attorney	P. J. M. Anderson
		Clerk of the Peace	“
		Deputy Clerk of Crown.....	A. G. Northup
		County Court Clerk	“
		Surrogate Registrar.....	“
Huron.....	Goderich	Sheriff	R. G. Reynolds.....
		Surrogate Judge	Judge Masson.....
		Local Master	Judge Doyle.....
		Crown Attorney	Ira Lewis
		Clerk of the Peace.....	“
		Local Registrar.....	D. McDonald
		County Court Clerk.....	“
		Surrogate Registrar.....	“
Kent.....	Chatham	Sheriff.....	John R. Gemmill.....
		Surrogate Judge	Judge Bell
		Local Master and Deputy } Registrar.	P. O'Hara

officers for 1898, earnings and sources from which derived, etc.—*Continued.*

Total receipts.	Net receipts.	From Government.	From County.	From general public.
§ c.	§ c.	§ c.	§ c.	§ c.
1,158 41	835 81	621 04	336 49	16 00
478 00	475 50	.....	.....	396 40
.....	.....	.....	.....	86 10
1,985 68	1,864 89	324 00	.....	2 25
.....	.....	250 89	1,265 65	94 93
1,440 29	1,140 29	600 00	.....	74 30
.....	.....	.....	.....	153 20
.....	.....	.....	.....	612 79
2,720 60	1,899 22	1,348 00	693 14	1,045 96
.....	commuted at	500 00	.....	.....
3,000 00	2,450 00	3,000 00	commuted	.....
3,177 77	2,621 28	1,562 75	60 00	152 00
.....	.....	297 68	1,121 28	111 23
2,576 00	1,751 14	450 00	.....	327 80
.....	.....	.....	.....	870 78
.....	.....	.....	.....	926 75
2,239 05	1,567 94	817 10	495 62	859 67
*1,000 00	1,000 00	.....	.....	1,019 25
302 42	291 87	.....	.....	340 28
2,157 64	1,377 64	546 20	28 90	.....
.....	.....	282 35	1,100 00	41 50
3,165 15	2,335 07	750 00	.....	313 40
.....	.....	.....	.....	391 05
.....	.....	.....	.....	1,710 70
2,420 90	1,298 24	1,145 30	806 57	915 30
.....	commuted	450 00	.....	.....
.....	commuted	1,600 00	.....	.....

* Also \$19.25 paid to Judge Doyle.

APPENDIX G.—Showing total and net receipts of officers

County or district.	County town.	Office.	Officer
Kent.—Continued...	Chatham.....	Crown Attorney	Wm. Douglas, Q.C.
		Clerk of the Peace	"
		Deputy Clerk of Crown	W. A. Campbell
		County Court Clerk.....	"
		Surrogate Registrar.....	"
Lambton	Sarnia.....	Sheriff	Jas. Flintoft.....
		Surrogate Judge	Judge Robinson
		Local Masters	"
			Judge Mackenzie
		Crown Attorney	J. P. Bucke
		Clerk of the Peace	"
		Local Registrar	W. R. Gemmill.....
		County Court Clerk.....	"
	Surrogate Registrar.....	"	
Lanark	Perth	Sheriff	Jas. Thompson
		Surrogate Judge	Judge Senkler
		Local Master.....	"
		Crown Attorney	E. G. Malloch.....
		Clerk of the Peace	"
		Local Registrar.....	Charles Rice
		County Court Clerk.....	"
		Surrogate Registrar.....	"
Leeds and Grenville.	Brockville	Sheriff	G. A. Dana.....
		Surrogate Judge	Judge McDonald
		Local Masters	"
			Judge Reynolds
		Crown Attorney	M. M. Brown
	Clerk of the Peace	"	

officers for 1898, earnings and sources from which derived, etc.—*Continued.*

Total receipts.	Net receipts.	From Government.	From County.	From general public.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
2,546 73	1,991 73	1,059 22		30 00
		195 01	1,000 00	262 50
2,414 50	1,738 05	450 00		120 00
				897 40
				997 10
2,851 50	1,964 34	1,096 10	435 81	839 81
482 75	482 75			482 75
276 65	276 65			276 65
2,289 88	1,898 57	858 66	23 32	
		257 90	1,020 00	
2,606 30	2,328 64	675 00		498 46
				538 49
				894 35
1,703 39	1,241 52	810 94	505 50	335 71
427 95	427 95			296 20
				118 81
1,045 33	934 39	504 43	88 64	34 00
		165 10	383 31	49 55
1,775 68	1,716 35	675 00		195 50
				262 85
				621 44
2,512 87	1,321 46	946 25	400 73	1,122 23
657 70	657 70	600 00	commuted	
				57 70
603 61	603 61			603 61
1,918 52	1,768 52	649 33		2 00
		224 70	730 59	311 87

APPENDIX G.—Showing total and net receipts of officers

County or district.	County town.	Office.	Officer.
Leeds and Grenville. —Continued	Brockville.....	Local Registrar	Saml. Reynolds.....
		County Court Clerk.....	“
		Surrogate Registrar.....	“
Lennox and Add'n.	Napanee	Sheriff	G. D. Hawley.....
		Surrogate Judge.....	Judge Williamson
		Local Master.....	S. S. Lazier
		Crown Attorney.....	S. C. Warner.....
		Clerk of the Peace	“
		Local Registrar	W. P. Deroche
		County Court Clerk.....	“
		Surrogate Registrar.....	“
Lincoln	St. Catharines.....	Sheriff	Thomas C. Dawson
		Surrogate Judge.....	Judge Senkler
		Local Master and Deputy Registrar. }	F. W. Macdonald.....
		Crown Attorney.....	M. Brennan.....
		Clerk of the Peace.....	“
		Deputy Clerk of Crown	J. Clench
		County Court Clerk.....	“
		Surrogate Registrar.....	“
Manitoulin	Gore Bay	Surrogate Judge.....	Judge Johnston
		District Court Clerk	Wm. S. Francis
		Surrogate Registrar.....	“
Middlesex	London	Sheriff	D. M. Cameron.....
		Surrogate Judge.....	Judge Wm. Elliott
		Local Master and Deputy Registrar	R. K. Cowan.....
		Crown Attorney	Jas. Magee, Q.C.....

for 1898, earnings and sources from which derived, etc.—Continued.

Total receipts.	Net receipts.	From Government.	From County.	From general Public.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
2,784 35	2,209 51	750 00	.....	218 60
.....	.....	.....	.....	592 38
.....	.....	.....	.....	1,223 37
1,145 53	893 19	688 71	401 05	526 15
.....	commuted.	400 00	.....	.....
105 60	80 60	.....	.....	97 30
964 36	809 66	124 80	.....	68 00
.....	.....	110 07	644 10	37 84
1,645 55	1,572 36	600 00	.....	291 70
.....	.....	.....	.....	369 70
.....	.....	.....	.....	384 15
2,420 53	1,936 32	1,031 80	548 70	953 01
.....	commuted.	566 00	.....	.....
2,090 10	2,090 10	.....	.....	2,090 10
1,642 30	1,491 80	634 00	.....	.....
.....	.....	156 50	756 20	95 60
1,978 12	1,753 37	450 00	.....	140 00
.....	.....	.....	.....	410 34
.....	.....	.....	.....	825 23
24 00	24 00	.....	.....	24 00
636 05	*636 05	350 00	.....	235 05
.....	.....	.....	.....	51 00
4,207 88	2,312 85	1,813 84	1,390 02	1,067 77
.....	commuted.	1,000 00	.....	+1,320 40
1,827 44	1,483 17	.....	.....	1,862 88
3,263 11	2,256 15	1,305 04	52 00	4 25

* Including salary of \$350.

+ Judge Edward Elliott \$320.40.

APPENDIX G.—Shewing total and net receipts of officers

County or district.	County town.	Office.	Officer.
Middlesex.— <i>Con</i> ..	London	Clerk of the Peace	Jas. Magee, Q. C.
		Deputy Clerk of Crown	John Macbeth
		County Court Clerk	"
		Surrogate Registrar.....	"
Muskoka	Bracebridge	Sheriff	James W. Bettes
		Surrogate Judge	Judge Mahaffy
		Local Master.....	"
		District Crown Attorney	Thomas Johnson
		Clerk of the Peace	"
		Local Registrar.....	Isaac Huber
		District Court Clerk	"
		Surrogate Registrar.....	"
Nipissing	North Bay	Sheriff	H. C. Varin
		Surrogate Judge	Judge Valin
		Local Master.....	"
		District Crown Attorney.....	A. G. Browning
		Clerk of the Peace	"
		Local Registrar.....	Thos. J. Bourke
		District Court Clerk	"
		Surrogate Registrar.....	"
Norfolk	Simcoe.....	Sheriff	Joseph Jackson.....
		Surrogate Judge	Judge Robb
		Local Master.....	"
		Crown Attorney	J. H. Ansley
		Clerk of the Peace	"
		Local Registrar.....	C. C. Repelje.....
		County Court Clerk.....	"
		Surrogate Registrar.....	"

for 1898, earnings and sources from which derived, etc.—*Continued.*

Total receipts.		Net receipts.		From Government.	From County.	From general public.			
\$	c.	\$	c.	\$	c.	\$	c.		
				510	17	1,076	98	315	16
4,015	90	2,667	31	500	00			272	40
								927	60
								2,429	90
2,220	17	1,500	65	*2,130	45				
47	50	47	50					47	50
1,466	29	1 073	94	†660	91				
				516	83			138	37
920	82	912	07	600	00			108	35
								62	07
								150	40
2,909	25	1,067	88	‡2,327	25				
40	00	40	00					26	50
								13	50
799	20	680	85	†586	32				
				313	66				
1,007	30	953	60	150	00			130	40
				450	00			220	65
								56	25
1,615	86	1,422	43	814	65	451	99	185	35
251	80	251	80					250	00
								1	80
1,370	93	1,333	47	197	70	273	00	21	00
				107	90	769	74	215	91
1,713	04	1,640	08	675	00			287	15
								326	80
								618	39

* Of this \$500 is salary.

† Including \$250 salary

‡ Of this \$750 is salary.

APPENDIX G.—Showing total and net receipts of officers

County or district.	County.	Office.	Officer.
Northumberland and Durham	Cobourg	Sheriff	I. O. Proctor
		Surrogate Judge	Judge Benson
		Local Master	J. H. Dumble
		Crown Attorney	J. W. Kerr
		Clerk of the Peace	"
		Local Registrar	John Fisher
		County Court Clerk	"
		Surrogate Registrar	"
Ontario	Whitby	Sheriff	J. F. Paxton
		Surrogate Judge	Judge Dartnell
		Local Master	"
		Crown Attorney	J. E. Farewell, Q.C.
		Clerk of the Peace	"
		Local Registrar	L. T. Barclay
		County Court Clerk	"
		Surrogate Registrar	"
Oxford	Woodstock	Sheriff	James Brady
		Surrogate Judge	Judge Finkle
		Local Master and Deputy Registrar	W. T. McMullen
		Crown Attorney	F. R. Ball, Q.C.
		Clerk of the Peace	"
		Deputy Clerk of Crown	James Canfield
		County Court Clerk	"
		Surrogate Registrar	"
		Parry Sound	Parry Sound .....	Sheriff .....	Samuel Armstrong .....
Surrogate Judge	Judge McCurry		
Local Master	"		

for 1898, earnings and sources from which derived, etc.—Continued.

Total receipts.	Net receipts.	From Government.	From County.	From general public.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
2,969 84	1,291 09	1,132 60	747 99	1,197 32
.....	commuted at	810 00	.....	.....
265 30	265 30	.....	.....	265 30
1,998 05	1,649 70	611 60	45 00	.....
.....	.....	178 75	742 25	358 40
2,966 72	2,232 32	750 00	.....	276 70
.....	.....	.....	.....	542 95
.....	.....	.....	.....	1,397 07
1,497 49	1,167 87	721 42	494 60	379 65
745 08	735 08	.....	.....	520 75
.....	.....	.....	.....	159 33
1,872 01	1,478 82	467 75	.....	55 13
.....	.....	304 61	959 76	11 75
1,923 90	1,683 90	675 00	.....	47 00
.....	.....	.....	.....	448 00
.....	.....	.....	.....	753 90
2,277 58	1,241 88	1,054 85	438 86	645 35
847 00	847 00	.....	.....	847 00
928 54	824 54	.....	.....	1,093 24
1,491 22	1,488 41	462 20	.....	.....
.....	.....	124 55	743 16	8 20
3,001 15	2,527 73	450 00	.....	351 00
.....	.....	.....	.....	650 35
.....	.....	.....	.....	1,556 75
1,997 57	1,146 37	*1,555 56	.....	268 64
24 00	24 00	.....	.....	24 00
.....

* This includes \$500 salary.

APPENDIX G.—Showing total and net receipts of officers

County or district.	County town.	Office.	Officer.
Parry Sound.— <i>Con.</i>	Parry Sound.....	District Attorney.....	W. L. Haight
		Clerk of the Peace	“
		Local Registrar.....	E. Jordan
		District Court Clerk	“
		Surrogate Registrar.....	“
Peel	Brampton	Sheriff	Robert Broddy
		Surrogate Judge	Judge McGibbon
		Local Master.....	“
		Crown Attorney.	W. H. McFadden
		Clerk of the Peace	“
		Local Registrar.....	J. A. Austin
		County Court Clerk	“
		Surrogate Registrar.....	“
Perth	Stratford.....	Sheriff	John Hossie
		Surrogate Judge	Judge Barron
		Local Master.....	“
		Crown Attorney	John Idington, Q.C.
		Clerk of the Peace	“
		Local Registrar	James MacFadden.
		County Court Clerk	“
		Surrogate Registrar.....	“
Peterborough	Peterborough.....	Sheriff	James A. Hall
		Surrogate Judge	Judge Weller
		Local Master.....	“
		Crown Attorney	Robert E. Wood
		Clerk of the Peace	“
		Local Registrar.....	John Moloney
		County Court Clerk.....	“
Surrogate Registrar.....	“		

for 1898, earnings and sources from which derived, etc — *Continued.*

Total receipts.	Net receipts.	From Government.	From county.	From general public.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
458 61	391 95	*340 90	.....	6 20
.....	.....	180 35	.....	76 88
689 68	677 57	600 00	.....	20 35
.....	.....	.....	.....	7 70
.....	.....	.....	.....	61 63
2,042 16	936 94	1,316 21	369 95	426 74
434 35	434 35	.....	.....	320 90
.....	.....	.....	.....	100 25
2,442 44	2,279 71	729 35	.....	.....
.....	.....	350 60	1,148 03	215 58
1,785 13	1,579 61	600 00	.....	221 80
.....	.....	.....	.....	318 33
.....	.....	.....	.....	660 61
2,560 88	1,480 34	969 50	468 86	856 78
976 25	961 25	873 00	commuted	.....
.....	.....	.....	.....	177 00
1,336 20	934 22	349 00	10 60	20 50
.....	.....	115 40	844 56	621 59
3,070 60	1,841 96	675 00	.....	632 00
.....	.....	.....	.....	563 50
.....	.....	.....	.....	1,429 50
1,969 48	1,266 63	951 29	498 15	530 34
722 90	722 90	.....	.....	296 00
.....	.....	.....	.....	426 90
1,542 25	1,501 45	554 72	60 00	.....
.....	.....	142 98	754 91	111 87
1,705 23	1,416 23	675 00	.....	136 00
.....	.....	.....	.....	343 00
.....	.....	.....	.....	551 23

* This includes \$212.33 salary.

APPENDIX G.—Showing total and net receipts of officers.

County or district.	County town.	Office.	Officer.
Prescott and Russell.	L'Orignal	Sheriff	Albert Hagar.....
		Surrogate Judge	Judge O'Brian.....
		Local Master.....	"
		Crown Attorney	John Maxwell
		Clerk of the Peace	"
		Local Registrar.....	John Fraser.....
		County Court Clerk.....	"
		Surrogate Registrar.....	"
Prince Edward	Picton	Sheriff	Jas. Gillespie.....
		Surrogate Judge.....	Judge Merrill
		Local Master.....	C. H. Widdifield
		Crown Attorney.....	J. Roland Brown.....
		Clerk of the Peace.....	"
		Local Registrar.....	W. H. R. Allison, Q.C.....
		County Court Clerk.....	"
		Surrogate Registrar.....	"
Rainy River.....	Rat Portage	Sheriff	W. H. Carpenter
		Surrogate Judge	Judge Chapple
		Local Master	"
		District Crown Attorney	H. Langford
		Clerk of the Peace.....	"
		Local Registrar.....	Frank J. Apjohn
		District Court Clerk.....	"
		Surrogate Registrar.....	"
Renfrew	Pembroke	Sheriff	Wm. Moffatt.....
		Surrogate Judge	Judge Deacon
		Local Master	"

*This includes \$500 salary paid by Government.

†This includes \$200 salary paid by Govern-

for 1898, earnings and sources from which derived, etc.—*Continued.*

Total receipts.	Net receipts.	From Government.	From county.	From general public.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1,809 79	1,012 10	*852 27	289 24	702 24
155 40	155 40	.....	.....	124 00
.....	.....	.....	.....	58 07
1,103 51	1,077 51	132 84	.....	.....
.....	.....	127 65	840 02	5 00
1,230 12	1,004 52	675 00	.....	124 00
.....	.....	.....	.....	201 44
.....	.....	.....	.....	343 52
1,530 85	598 15	†809 49	466 76	209 58
233 00	233 00	.....	.....	233 00
188 65	113 65	.....	.....	269 20
995 50	945 90	231 50	.....	.....
.....	.....	126 63	610 70	43 45
1,563 22	1,499 72	600 00	.....	.....
.....	.....	.....	.....	404 75
.....	.....	.....	.....	558 47
3,085 37	1,954 84	‡2,290 08	.....	643 95
48 50	48 50	.....	.....	48 50
.....
725 15	717 15	\$473 15	.....	.....
.....	.....	252 00	.....	.....
1,164 58	1,164 58	700 00	.....	183 30
.....	.....	.....	.....	204 30
.....	.....	.....	.....	76 98
2,475 73	1,727 03	1,104 71	551 21	815 23
321 35	321 35	264 00	commuted.	.....
.....	.....	.....	.....	57 35

ment. †This includes \$1,000 salary paid by Government.

‡This includes \$250 salary.

APPENDIX G.—Showing total and net receipts of officers

County or district.	County town.	Office.	Officer.
Renfrew.— <i>Con.</i>	Pembroke	Crown Attorney	J. H. Metcalfe
		Clerk of the Peace	“
		Local Registrar.....	Archibald Thomson.....
		County Court Clerk.. .. .	“
		Surrogate Registrar.... .. .	“
Simcoe	Barrie.....	Sheriff	Hon. Chas. Drury
		Surrogate Judge.....	Judge Ardagh.....
		Local Master	J. R. Cotter
		Deputy Registrar.....	“
		Crown Attorney	“
		Clerk of the Peace.....	“
		Deputy Clerk of Crown.....	J. McL. Stevenson
		County Court Clerk	“
		Surrogate Registrar.....	“
Stormont, Dundas and Glengarry....	Cornwall	Sheriff	A. McNabb
		Surrogate Judge	Judge Pringle
		Local Master.....	“
		Crown Attorney.....	Jas. Dingwall
		Clerk of the Peace	“
		Local Registrar.....	John A. McDougald.
		County Court Clerk.....	“
		Surrogate Registrar.....	Helen McDonald
Thunder Bay	Port Arthur	Sheriff	Alex. W. Thompson
		Surrogate Judge.....	Judge Fitzgerald
		Local Master	“
		District Crown Attorney.....	Thos. A. Gorham
		Clerk of the Peace.....	“

†Includes \$250 salary. *This includes

for 1898, earnings and sources from which derived, etc.—*Continued.*

Total receipts.	Net receipts.	From Government.	From County.	From u
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1,368 68	1,291 63	541 00		
		216 49	495 10	29 94
1,561 67	1,394 62	600 00		94 05
				465 27
				402 35
3,757 59	1,954 64	1,611 15	558 69	958 01
	commuted	585 00		
3,074 86	2,680 60			229 50
		1,025 05	16 00	303 11
		283 86	889 41	115 45
2,718 99	2,189 20	500 00		456 90
				185 20
				806 04
				1,227 75
2,680 83	1,229 77	980 52	964 74	965 24
884 60	884 51			551 25
				333 35
1,240 98	1,090 35	317 79	35 67	
		145 10	771 61	208 36
1,405 60	1,390 60	750 00		895 50
				510 10
845 25	842 25			845 20
2,458 99	1,835 77	1,864 96		679 76
93 65	93 65			71 25
				22 40
624 79	585 24	431 10		
		83 04		

\$1,000 salary paid by Government.

APPENDIX G.—Showing total and net receipts of officers

County or district.	County town.	Office.	Officer.
Thunder Bay.— <i>Con.</i>	Port Arthur	Local Registrar	James Meek
		District Court Clerk	“
		Surrogate Registrar	“
Victoria	Lindsay	Sheriff	John McLennan
		Surrogate Judge	Judge Dean
		Local Master	“
		Crown Attorney	A. P. Devlin
		Clerk of the Peace	“
		Local Registrar	Wm. Grace
		County Court Clerk	“
		Surrogate Registrar	“
Waterloo	Berlin	Sheriff	Moses Springer
		Surrogate Judge	Judge Chisholm
		Local Master	J. J. A. Weir
		Crown Attorney	W. H. Bowlby, Q.C.
		Clerk of the Peace	“
		Local Registrar	John McDougall
		County Court Clerk	“
		Surrogate Registrar	A. J. Peterson
Welland	Welland	Sheriff	James Smith
		Surrogate Judge	Judge Fitzgerald
		Local Master	“
		Crown Attorney	T. D. Cowper
		Clerk of the Peace	“
		Local Registrar	Isaac P. Wilson
		County Court Clerk	“
Surrogate Registrar	“		

This includes \$100 salary

for 1898, earnings and sources from which derived, etc.—*Continued*

Total receipts.	Net receipts.	From Government.	From County.	From general public.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1,098 86	1,065 41	600 00	.....	305 35
.....	.....	.....	.....	258 15
.....	.....	.....	.....	70 29
1,922 21	1,406 91	905 55	531 05	303 36
.....	commuted	500 00	.....	.....
.....	commuted	900 00	.....	.....
1,062 72	1,062 72	338 85	.....	30 00
.....	.....	93 60	492 73	77 00
1,490 69	1,450 89	675 00	.....	127 30
.....	.....	.....	.....	314 60
.....	.....	.....	.....	450 95
1,946 79	1,207 45	* 951 89	452 23	439 78
680 75	680 75	.....	.....	680 75
158 75	149 70	.....	.....	169 40
1,692 55	1,292 55	413 15	5 15	.....
.....	.....	268 27	1,000 00	8 05
1,716 20	1,404 75	1,075 00	.....	228 75
.....	.....	.....	.....	412 45
1,017 86	617 86	.....	.....	1,017 86
1,760 23	1,154 63	733 10	593 88	520 55
580 85	580 85	.....	.....	409 45
.....	.....	.....	.....	123 90
1,706 52	1,071 97	469 35	.....	.....
.....	.....	113 70	1,172 45	61 68
1,910 58	1,603 04	600 00	.....	123 20
.....	.....	.....	.....	343 45
.....	.....	.....	.....	841 03

paid by Government.

APPENDIX G.—Showing total and net receipts of officers

County or district.	County town.	Office.	Officer.
Wellington	Guelph	Sheriff	Robt. McKim
		Surrogate Judge	Judge Chadwick
		Crown Attorney	H. W. Peterson
		Clerk of the Peace	"
		Local Master	A. M. McKinnon
		Local Registrar	"
		County Court Clerk	Wm Carroll
		Surrogate Registrar	Alex. Mackenzie
Wentworth	Hamilton	Sheriff	John H. Murton
		Surrogate Judge	Judge Snider
		Local Master and Deputy Registrar	J. E. O'Reilly
		Crown Attorney	John Crerar, Q.C.
		Clerk of the Peace	"
		Deputy Clerk of Crown	S. H. Ghent
		County Court Clerk	"
		Surrogate Registrar	"
York	Toronto	Sheriff	J. H. Widdifield
		Surrogate Judge	Judge Macdougall
		"	Judge Morgan
		"	Judge Morson
		Crown Attorney	H. H. Dewart
		Clerk of the Peace	T. H. Bull
		Surrogate Registrar	Joseph Tait
		County Court Clerk	Hon. A. M. Ross
Toronto City	Toronto	Sheriff	Fred. W. Mowat
		Crown Attorney	J. W. Curry

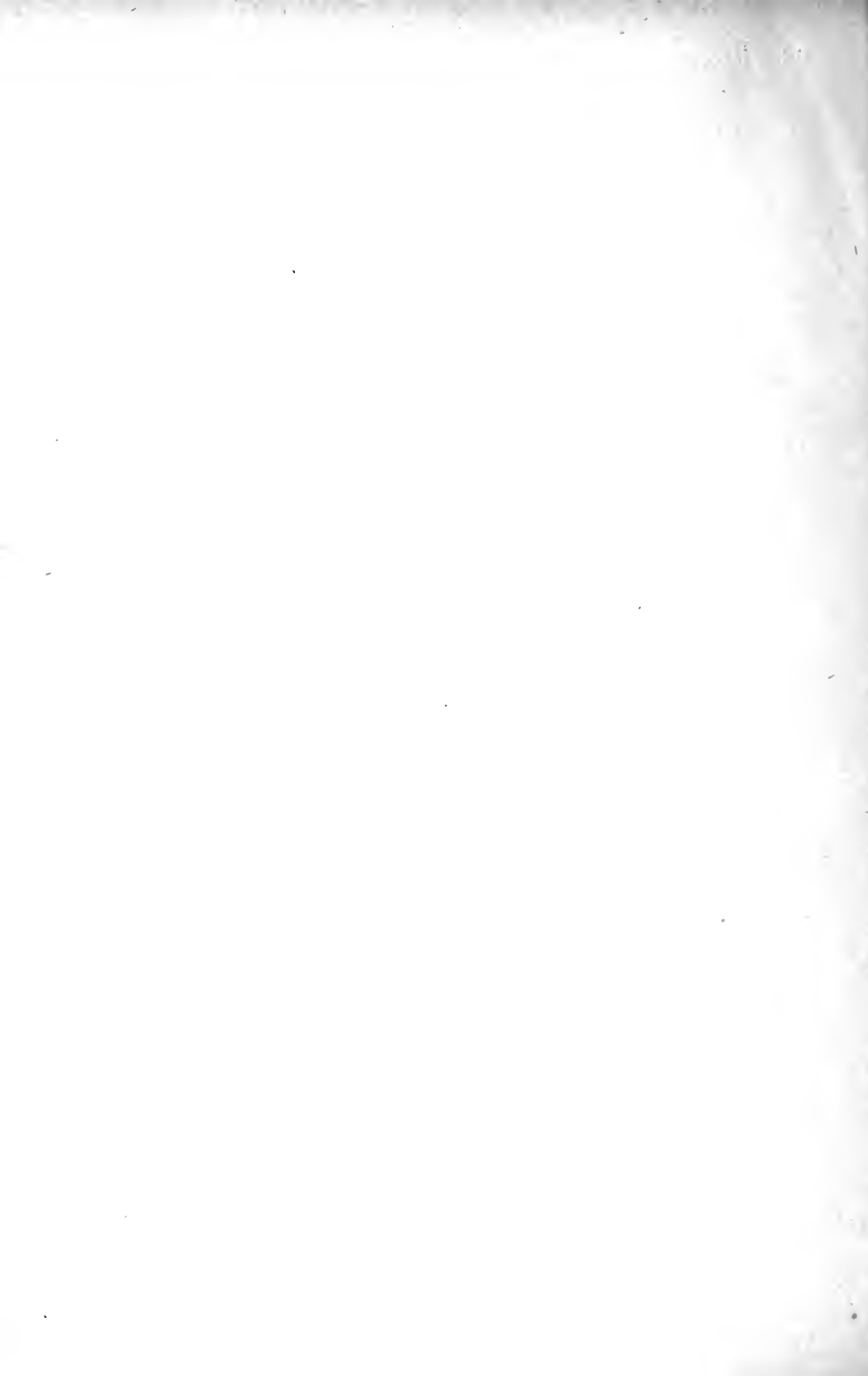
for 1898, earnings and sources from which derived, etc.—*Concluded.*

Total receipts.	Net receipts.	From Government.	From county.	From general public.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
2,102 06	795 26	1,063 45	421 37	474 83
*1,000 00	1,000 00	.....	.....	1,194 75
2,657 43	1,881 43	777 69	.....	55 75
.....	.....	319 54	1,700 00	60 00
2,181 36	1,934 26	.....	.....	1,484 52
.....	.....	750 00	.....	140 37
524 55	517 35	.....	.....	523 70
1,460 57	1,285 57	.....	.....	1,415 44
.....
3,137 20	1,414 20	1,758 50	586 26	855 35
†1,175 50	1,175 50	.....	.....	1,743 00
.....
3,500 00	3,300 00	3,500 00	commuted	.....
.....
2,416 93	1,886 93	1,384 38	.....	.....
.....	.....	428 93	603 62	.....
4,335 71	2,969 08	500 00	.....	361 50
.....	.....	.....	.....	1,293 40
.....	.....	.....	.....	2,252 70
.....
6,292 47	3,149 25	4,202 80	752 43	1,144 82
2,900 75	2,900 75	.....	.....	4,646 75
.....	.....	666 00	.....	.....
.....	.....	666 00	.....	.....
3,681 73	2,677 39	3,062 90	‡134 00	51 33
4,180 59	2,847 11	1,014 45	2,015 20	1,247 21
4,476 28	2,807 24	.....	.....	4,476 28
4,584 12	2,785 37	.....	.....	4,602 85
.....
7,615 90	3,021 72	2,950 68	\$1,073 05	3,817 14
3,809 00	3,111 10	4,071 00	.....	.....

* Also \$194.75 paid Judge Jamieson, was payable by City.

† Also \$567.50 paid Judge Monck, § Of this \$554 was payable by City.

‡ Of this \$107.20



REPORT

RELATING TO THE REGISTRATION OF

BIRTHS, MARRIAGES AND DEATHS

IN THE

PROVINCE OF ONTARIO

FOR THE

YEAR ENDING 31st DECEMBER

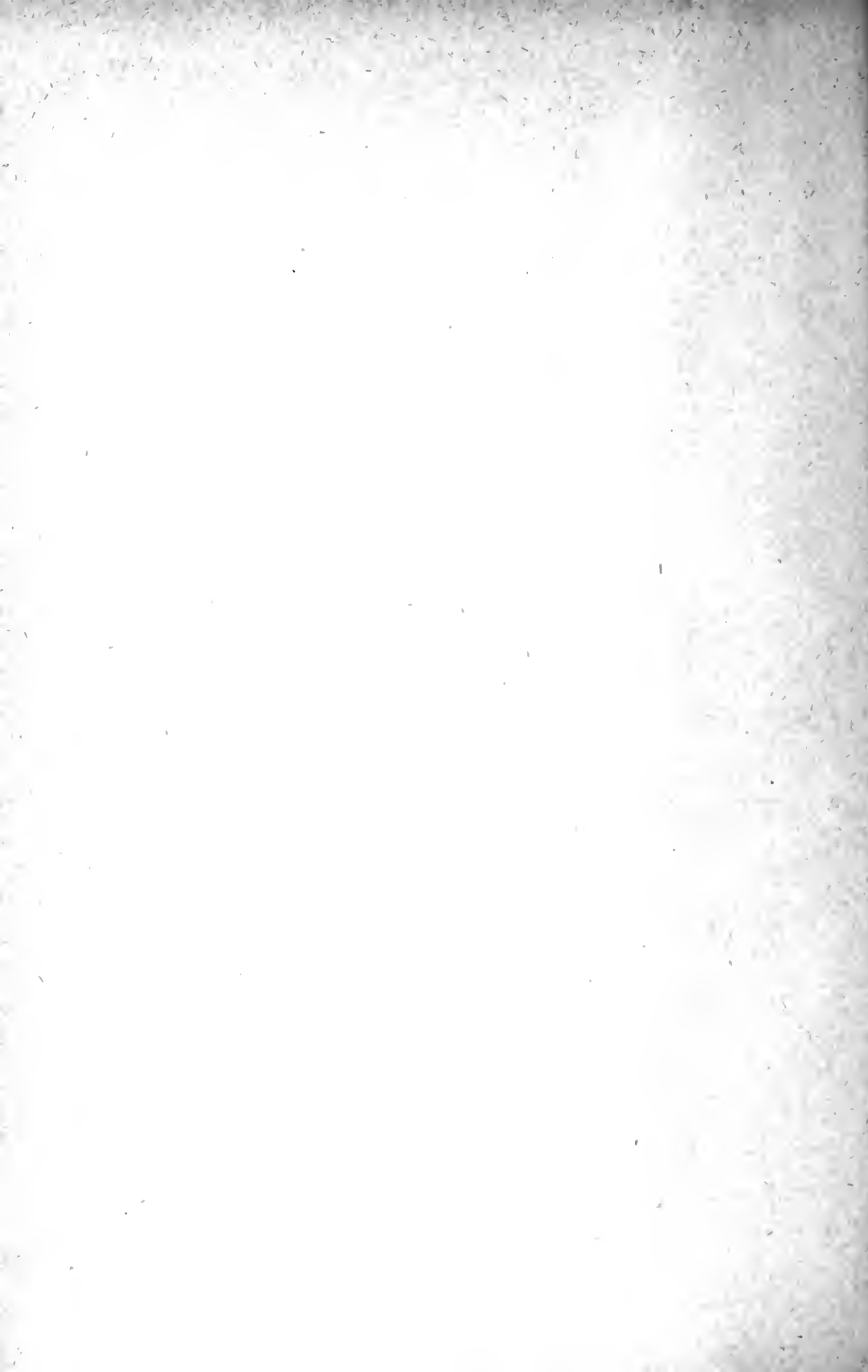
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OFFICE OF THE REGISTRAR-GENERAL FOR ONTARIO,

TORONTO, December 1st, 1898.

To Sir OLIVER MOWAT, K.O.M.G.,

Lieutenant-Governor of the Province of Ontario.

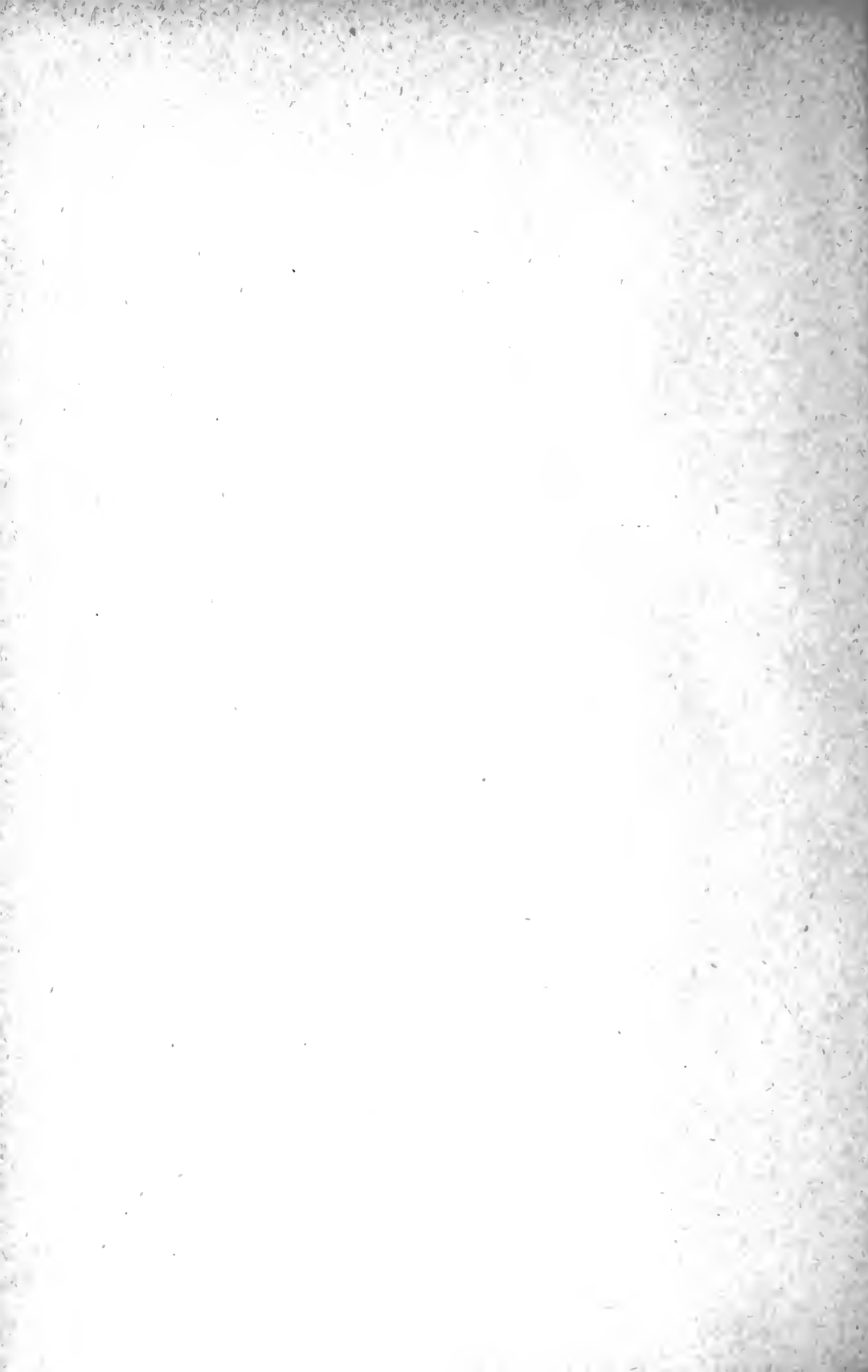
MAY IT PLEASE YOUR HONOUR :

In compliance with the Statute in that behalf, the undersigned respectfully presents to Your Honour the Annual Report of Births, Marriages and Deaths for the year ending 31st December, 1897.

Respectfully submitted,

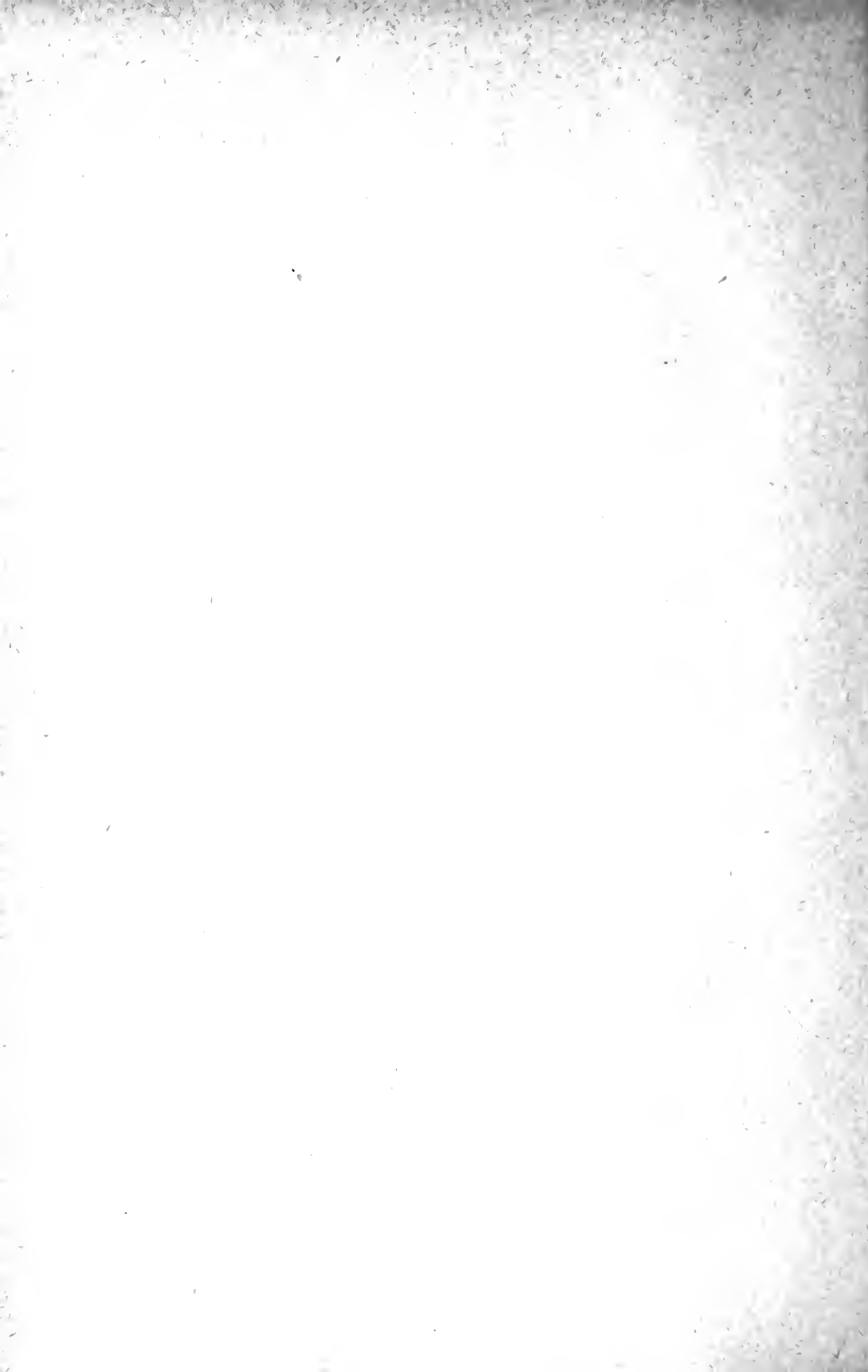
E J. DAVIS,

Registrar-General.



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REPORT

RELATING TO THE REGISTRATION OF

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IN THE PROVINCE OF ONTARIO, FOR THE YEAR
ENDING DECEMBER 31st, 1897.

TORONTO, December 1st, 1898.

TO THE HON. ELIHU JAMES DAVIS.

Registrar-General of the Province of Ontario.

SIR,—I have the honor herewith to lay before you for consideration, the twenty-eighth annual report regarding births, marriages and deaths in the Province of Ontario, being for the year 1897.

Population.

The population utilized as the basis of calculation for the several tables of the report, is estimated from the difference between the number of births and of deaths recorded for the year, by the 777 Division-Registrars.

The total births returned is, 47,323, and the total deaths 27,633, the difference giving an actual increase over 1896 of 19,690. This increase added to the assumed population of 2,263,492 in 1896, gives a population of 2,283,182, or an increase practically of one per cent. of population during the year. No attempt has been made to estimate the variation in the population due to immigration and emigration. Owing to the transportation of persons through Ontario, en route from Europe to the United States, by Canadian railways, and their passage tickets in Europe having often been sold to Canadian ports, the immigration returns give results which are little to be depended upon in calculating the increase of population from this source. Similarly the emigration from Ontario to Manitoba is liable to error owing to many young men going there to work in the spring, returning often in the autumn. The following returns relating to both immigration and emigration are given :

According to the report of the Minister of the Interior for 1897, the total immigrants arriving by ocean steamers in Canada, was 27,209. Of these, 19,304 had Canada as their destination, 9,709 of them settling in Manitoba, the North-West Territories and

British Columbia, leaving 9,595 for distribution to the other provinces. Making allowance for the emigration to the North-West of 455 settlers and assuming half of the 9,140 immigrants to have come to Ontario, there was an increase of 4,570.

From the imperfect data obtained from the Board of Trade returns in England, the Registrar-General there has assumed that, for practical purposes, it is preferable to calculate population from the difference between the births and deaths in any year, not attempting to estimate either the immigrants or emigrants. While manifestly this method cannot be adopted for such provinces as Manitoba, where there is a notable influx of settlers, yet in an old agricultural community as Ontario, it is probably true that the increase in the new mining and lumber districts is offset by emigration from the oldest counties where machinery and cattle-raising have lessened the need for agricultural laborers.

The total Municipal Registration Divisions in 1898 were.....	777
“ Division Registrars in organized municipalities “	750
“ Division Registrars in unorganized areas “	27
“ Division Registrars making returns “	777

By the power placed upon the Registrar-General under the Act to appoint Division Registrars in unorganized territory, he has endeavored to have a Division Registrar appointed in every new group of settlements for convenience of registration, and so far as known, there is no single area in Ontario where local registration facilities are absent.

For the reasons given, it is apparent, that there will be an increase yearly of the areas of registration, and inasmuch as there is no municipal assessment in unorganized territory, its population reported upon, being based on the last census, cannot in any accurate manner be estimated. The only method possible has been to take populations from the municipal assessment, and by assuming the vital statistics for any neighboring unorganized territory to have the same relation to population, we may calculate from the returns the probable average population.

Completeness of Returns.

Practically the whole population of the Province being within some registration division, the accuracy of the statistics, assuming that the estimated population is correct for the whole Province, will depend upon the completeness of the returns made by each registrar. The year 1897 is the first complete year for which returns have been made under the Act, as revised and consolidated in 1896. The various provisions made under the Act, with a view to improving the returns, have been referred to in the last two Annual Reports.

The operation of the Act is seen by a comparison of returns for the several years, 1892-1897.

Year.	Births.	Marriages.	Deaths.	Total.
1892.....	42,176	14,482	23,120	79,778
1893.....	42,894	14,475	22,903	80,292
1894.....	42,051	14,341	22,538	78,930
1895.....	41,628	13,987	22,461	78,076
1896.....	46,908	14,904	24,857	86,669
1897.....	47,323	15,293	27,633	90,249

While it must be remembered that the number of registration divisions has been increased since 1892, yet many of these had been already added in 1895, when the total returns were slightly less than in 1892. The notable increase in the total returns

in 1897 may, therefore, be fairly attributed to the better provisions of the new Act for obtaining returns. As compared with 1895, it will be seen from the previous tables, that the several increases are :—

Births	5,695	13.7 per cent.,	or a total rate of 20.6 per 1,000.
Marriages.....	1,306	9.2 “	6.7 “
Deaths.....	5,172	23.0 “	12.2 “
Total.....	12,173	or	15.3 per cent.

These results of the first complete year under the operation of the revised Act must be considered remarkable, as illustrating what is possible, when a practical scheme is put in operation, wherein, with exactness of detail in the definite legal requirements of the Act, every possible facility has been given, whereby the provisions of the Act may be carried out with no inconvenience or irksomeness to a single member of the community. The principal provisions of the revised Act whereby these results have been effected may be recalled.

1st. That whereby physicians, as well as householders, are required to report births.

2nd. That requiring clergymen to make a half-yearly return of all marriages celebrated by them during the previous half-year, as well as the monthly return of each marriage.

3rd. The clause in the Marriage Act, requiring issuers to forward to the Registrar-General, the particulars of every license issued by them.

4th. The prohibition of all funerals until a burial permit has been issued by the Division-Registrar, which can only be done after registration of the death.

5th. The privilege of sending all blank forms free through the mails, and the supplying of post-card blanks of every kind, with envelopes for free transmission by the local registrars to clergymen, physicians and householders.

6th. The increase of the fee to Division-Registrars for each registration return.

7th. That whereby a Burial permit may be issued, in the case of townships, by the nearest Division-Registrar, the original return being sent to the proper Division for registration.

8th. That whereby a clause requires Division Registrars to make monthly returns of all deaths from contagious disease occurring during the previous month.

That the working of the Act has proved, in a large measure, satisfactory, may be gathered not only from the increased returns, but also from the comparatively few enquiries made during the year regarding the meaning of clauses of the Act, and the absence of complaints as to their irksomeness.

Not only, however, are the returns larger, as already seen, but they are also more complete than ever as regards the particulars asked for. Indeed, it is now the exception to find an incomplete return, and the omission is generally in some unimportant item, not readily obtainable by the Division-Registrar.

In one point only is it believed that the returns are otherwise than practically complete, and this is the return of births. While the provision requiring physicians to report births has been a most important means of improving the returns, yet there is no doubt from a close examination and comparison of returns, that births in some municipalities are yet by no means complete. By examining returns of Division Registrars who are known to take advantage of every known means to obtain complete returns, it is found that births stand to deaths, practically as two to one. Again, it will have been noticed that since a burial can legally take place only on a burial permit, and as a death is a matter of general knowledge, and not readily overlooked, the percentage of increase in deaths, with no general increase of sickness, but rather the opposite, has amounted to 23 per cent., whereas births have increased but 13 per cent.

Moreover, in a certain proportion of cases where, amongst the poor, and in outlying settlements, no physician has been in attendance at a birth, there will be in such cases, doubtless, a frequent neglect on the part of householders to register births. It is readily possible, however, to determine where such omissions are habitual, and it is found to be principally in those municipalities where the Division-Registrar is not allowed the legal fee for each registration; the council having commuted his fees, he agreeing, doubtless under protest, to perform all the duties of clerk for a fixed sum.

The following instances illustrate this point:—

Toronto	Total births	4,078	Total returns by physicians	856 or 21.0 per cent.
Hamilton	"	969	"	about 20 "
Ottawa	"	1,273	"	314 or 24.7 "
London	"	352	"	27 or 5.0 "
Kingston	"	356	"	120 or 34.1 "
Brantford	"	408	"	6 or 1.0 "
St. Thomas	"	221	"	2 or 1.0 "
Guelph	"	259	"	10 or 3.8 "
St. Catharines....	"	200	"	44 or 22.0 "
Belleville	"	151	"	22 or 4.0 "
Stratford	"	134	"	21 or 10.6 "
Windsor	"	237	"	20 or 8.5 "
Chatham	"	199	"	22 or 11.0 "

To the great credit, however, of the municipal clerks, it would seem that many, in spite of the fact that they are deprived of what the Legislature has specially stated they are entitled to, faithfully perform their duties as Division-Registrars. It is hoped that the difficulty may in some manner be overcome by legislation. If then, the percentage of increase, actually obtained in the returns of deaths, be applied to births, and it is probable it should be more rather than less, there would be some 4,000 births added to the returns, or a total of 51,500 would have been recorded. If, however, the investigation, which has been already referred to, in the larger centres as in several cities shows an extended neglect, it is quite probable that even this increase should be further added to, in order that the true birth-rate of the Province may be arrived at. It may further be stated that from 307 replies sent in answer to a circular to Division Registrars thirty, or ten per cent. state their fees are commuted; and in many others are practically so, since the salary as the clerk is reduced.

Movement of population in Ontario.

Remembering that the settlement of Ontario has taken place almost wholly within the past 100 years, it is manifest that conditions of settlement have made it impossible to make comparative studies in any close degree comparable to those which can be made between districts in old countries, as England or France, which have been settled for hundreds of years. Not less interesting, however, is the study of the statistics which are available, such as the census returns, since new influences are seen operative, in some ways different from those in the older countries of Europe. Especially are such seen where settlements rapidly spring up, as now may be seen in the new mining camps of British Columbia, and as formerly occurred in Ontario, where the lumbering industry in the new agricultural communities, at first formed a large portion of the business of many counties.

Not only did such industries greatly influence the movement of population in what was then Upper Canada, but they were repeated decade after decade in successive counties as such were opened up for settlement.

Owing to the fact of the frequent redistribution of population into electoral districts with different boundaries, it has been difficult to make accurate comparisons of all the counties as they now exist, but the following table for three periods taken from the census returns for 1851 and 1881 along with the population used as the basis of this report, show in an interesting manner the movement of population in Ontario.

Table of Population for Counties from Census of 1851, 1881 and for 1897 based on 1891 Census.

Counties.	1851.	1881.	1897.
Algoma	not settled.	26,104	46,734
Brant (cities included)	25,426	33,869	38,722
Bruce	2,837	64,403	60,642
Carleton	23,367	58,876	82,474
Dufferin	(then included in Wellington & Simcoe)		
Elgin	22,093	22,093	23,632
Essex	25,418	42,361	46,087
Frontenac	16,817	48,049	50,017
Grey	19,150	40,384	49,948
Haldimand	10,413	70,539	75,667
Halton	18,788	24,980	24,903
Hastings	18,322	21,919	23,357
Haliburton	31,977	45,545	62,880
Huron	not settled.	5,911	6,742
Kent	19,188	76,526	70,955
Lambton	17,469	54,310	62,368
Lanark	10,815	52,034	58,358
Leeds and Grenville	27,317	33,975	40,082
Lennox and Addington	50,987	61,175	64,693
Lincoln	23,120	26,484	26,295
Middlesex	23,868	31,573	31,959
Muskoka and Parry Sound	32,863	93,111	108,334
Norfolk	not settled.	27,204	17,606
Northumberland and Durham	21,281	33,527	32,927
Ontario	61,961	77,388	74,857
Oxford	30,576	48,812	48,190
Peel	32,638	50,159	52,964
Perth	24,816	26,175	26,423
Peterborough	15,545	45,454	54,949
Prescott and Russell	15,237	30,472	37,514
Prince Edward (cities included)	13,357	35,937	43,115
Renfrew	18,887	21,044	20,065
Simcoe	9,415	38,166	48,832
Stormont, Dundas and Glengarry	27,165	74,803	76,212
Victoria	46,050	66,017	74,096
Waterloo	11,656	33,655	35,051
Welland	26,537	42,740	53,633
Wellington	20,141	31,771	32,544
Wentworth	26,796	64,632	63,151
York	28,507	66,952	83,780
	48,944	153,113	298,268

Excepting Wellington and Waterloo, which were first opened for settlement about 1825, the other of the following counties had, excepting Kent, made great progress in settlement, by the census year 1851. Especially had settlement been rapid between 1840 and 1850, as may be seen from the following figures of population in Upper Canada in different years :

Population of Ontario in different Years.

1840.....	427,441	1861.....	1,396,091
1841.....	465,357	1871.....	1,620,851
1842.....	486,055	1881.....	1,923,228
1848.....	723,322	1891.....	2,114,321
1851.....	952,004	1897.....	2,283,182

It will be seen that as between 1840-51, the population increased over 100 per cent., and that some of the counties—as Brant, Lincoln, Prince Edward—were completely settled in 1851, as an increase since then has been wholly in the county towns ; the rural population being actually less than in 1851. This loss was apparently in Brant, 5,234 in 1891 ; and in Prince Edward, 3,434 in 1891. Such illustrations serve to illustrate what an unstable thing population in a new country has been. From the enormous increase of

population in the decade 1840-50, it is manifest that the influences affecting the population were external to the Province. Economic causes, as the depression of agriculture in Britain and the Irish famine, played an important part in the settlement of Upper Canada at that time, and such influence was doubtless greatest in those counties already partially settled. That during the past three decades, there should have been in such counties a successive decline of the population, is a phenomenon, the causes of which it is here not necessary to discuss at length; but it is important, as indicating a condition, which in succeeding decades, has likewise been operative in other counties, where a general settlement followed at a period later than in these oldest counties.

Thus Perth, Huron, Bruce, Grey, Simcoe, etc., are counties where settlement became general only at a time when the oldest counties were practically filled up.

The following figures illustrate the fact:

	1851.	1861.	1871.	1881.	1891.
Perth	15,545	38,083	46,536	54,985	46,307
Huron	19,198	51,954	66,165	76,970	58,173
Bruce	2,837	27,499	48,515	64,774	64,603
Grey	10,413	37,750	59,395	74,129	76,238
Simcoe	27,165	44,720	57,389	76,129	84,828

Again, a later movement of population went on, when the *free grant* lands of Muskoka, Parry Sound, Haliburton, Victoria, Hastings and Renfrew, were opened up, after Confederation, and settlement began about 1870; and finally there has been a widening of this movement during the last fifteen years, since the Canadian Pacific Railway opened up the country from Pembroke to Rat Portage.

From the statistical standpoint, these successive movements of population are of extreme importance, in enabling us to study intelligently, those vital conditions which affect very markedly, the rates of births, deaths and marriages.

As an illustration of what is meant, Dr. John Tatham, in the supplement to the 55th annual report of the Registrar-General of England, in a special study of the deaths for 1881-90, says, "It is therefore futile to compare the crude death rates of different districts, unless their populations are known to be alike with respect to age and sex constitution," and illustrates the fact by taking the populations of Norfolk and Lancashire from the census of 1891, and points out the difference in the age distribution. Thus:—

	Per 1,000 population.	
	In Norfolk.	In Lancashire.
Under 15 years of age	353	352
15 and under 45 years	410	479
45 and upwards	237	169

Owing to the different distribution of these two populations, as regards rural and urban residence, and the difference in occupation, it will be seen that the number of persons in Norfolk, over 45 years of age, is 68 more than in Lancashire. As the average death-rate in persons over 45 was over four times as great as under that age it is plain that no close comparison of the total mortality, or crude death rates, in such cases can be made.

Yet still another illustration of this movement of population and its different distribution according to age periods may be taken from the Report on Vital Statistics of Ireland for 1897. In 1897, the returns for Ireland, give births 106,664, and deaths 83,839, or a natural increase of 22,825. As there were 32,535 emigrants recorded, there was, unless made up by an immigration, of which no record has been kept, a loss of population of nearly 10,000. While the greatest average marriage rate was 5.03 per 1,000 in 1897, that in the province of Connaught, including the counties of Galway, Leitrim, Mayo, Roscommon and Sligo, average only 3.3 per 1,000, and the average birth rate but 20 per 1,000.

Or to take another return depending upon conditions, comparable to that in at least several of our old counties, from the report of the Registrar-General of Scotland, 1897, it is found that while in the group of districts known as the Insular Rural, the census of 1881 gave a population of 130,388; this was decreased to 123,163 in 1896. Not only is this decline very remarkable, amounting, in spite of the natural increase of births over deaths, to 7,225 between 1881-1896, but the excess of females over males, which was in 1881, 8,030 in the 130,388, had increased 601 in 1896. As would be supposed, the birth rate shows an intimate connection with these figures. Thus, while the birth rate for all Scotland in 1896, was 30.9 per 1,000, and that in the principal town districts, was 32.5 per 1,000—that in the Insular Rural district was but 22.7 in 1896—with an illegitimate rate of 6.65 per cent. of all births, rising in one county to 14.61 per cent. of all births.

Table of Age (percentage), Distribution of Population in 1,000,000 Persons in England and Wales, 1881-1890; in United States in 1890 Census, and in Ontario, 1891 Census.

All ages.	England.		United States.		Ontario.	
	Reduced to rate per 1,000,000.	Per cent.	Population in 1890, 62,622,190.	Per cent.	Population in 1891, 2,114,321.	Per cent.
0—4	128,679	12.8	7,634,693	12.19	239,847	11.34
5—9	119,006	11.9	7,573,998	12.09	246,610	11.65
10—14	109,571	10.00	7,033,509	11.23	243,277	11.50
15—19	100,007	9.00	6,557,563	10.47	232,073	10.97
20—24	90,006	14.8	6,196,676	9.90	219,983	10.40
25—34	148,630	11.4	9,806,407	15.66	325,520	15.39
35—44	114,039	8.4	7,051,679	11.26	226,064	10.69
45—54	84,950	5.8	5,057,802	8.07	164,952	7.80
55 and over.	104,598	10.4	5,709,823	9.13	216,052	10.83

This comparative table illustrates the fact above alluded to, that with but little immigration in a population like that in a rural district in England, Ireland and Scotland, the births are proportionately lower, and hence the percentage of persons living in the age period 0-4 is 1.5 per cent. lower in Ontario than in England, and 0.8 than in the United States.

Births.

In a previous paragraph some of the causes which have been operative in producing not only variations in the comparative birth rate of different counties in Ontario have been pointed out, but by comparative illustrations it has been shown that in every country, where similar influences have been operative, there are districts in which the birth rate is abnormally low. In view, however, of public attention having been called to the low recorded birth rate of Ontario, taken as a whole, not only in previous reports of the Registrar-General, but also owing to the matter having during the past year been referred to in a

resolution adopted by the Montreal Synod of the Church of England, deploring the fact; and inasmuch as strongly worded articles on the subject have appeared in the daily press, it seems proper that the Registrar-General should present as many statistical facts bearing on the matter as are available in order that any inferences as to the causes for this low birth rate may be based upon extended data.

The following grouping of Ontario counties, classified as far as practicable on the basis of the periods of their settlement presents facts of interest regarding the birth rate, it always being remembered that the returns are to some extent defective. It will be remembered that early settlement was naturally along the great rivers and lakes. The inland counties and townships of older counties belong largely to the later railroad building period. The several large cities are included in their counties, and thus make several old settled counties, as York, Wentworth and Middlesex show large increases in their later periods.

Table from Census of 1851, giving Birth rate per 1,000 population.

<i>St. Lawrence and Lake Ontario Counties.</i>		<i>Lake Huron Counties</i>	
GROUP 1.		GROUP 8.	
Glengarry	19.7	Huron	45.9
Dundas	42.6	Bruce	37.7
Stormont	25.5	Grey	41.0
Grenville	40.5	Simcoe	35.1
Leeds	21.4		
GROUP 2.		<i>River Ottawa Counties.</i>	
Frontenac	36.0	GROUP 9.	
Lennox	31.1	Carleton	42.7
Addington	32.4	Prescott	33.3
Hastings	35.0	Russell	42.1
GROUP 3.		<i>Eastern Inland.</i>	
Prince Edward	35.5	GROUP 10.	
Northumberland	41.4	Victoria	31.4
Durham	30.7	Peterboro'	32.1
Ontario	38.0	Renfrew	34.9
GROUP 4.		Lanark	28.0
York	37.9	<i>Western Inland.</i>	
Peel	30.5	GROUP 11.	
Halton	22.1	Brant	34.7
Wentworth	30.8	Oxford	37.2
<i>Niagara Peninsula.</i>		Middlesex	34.5
GROUP 5.		Perth	37.0
Welland	31.4	Waterloo	40.5
Simcoe	40.0	Wellington	32.1
Haldimand	39.8	Dufferin (included in Wellington and Peel) ..	
<i>Lake Erie Counties.</i>		<i>New Settlements since 1871.</i>	
GROUP 6.		*Algoma (pop. 46,272)	35.8
Norfolk	31.2	*Muskoka and Parry Sound (pop. 55,118)	28.8
Elgin	35.2	*Haliburton (pop. 6,676)	21.5
<i>Western Peninsula.</i>			
GROUP 7.			
Kent	34.0		
Essex	41.7		
Lambton	30.4		

*No exact estimate of population possible.

We have, however, yet another table which is instructive as bearing upon the completeness with which births have been reported, and it is based upon the proportion of instances where the physician is reported as being present at a birth. Those instances where no physician is reported in attendance form in the newer counties a notable percentage of all returns.

Table of Births in 1897, giving number returned without Physicians in attendance, or where Midwives were in attendance.

Counties.	No physician.	Midwives.	Total births	Counties.	No physician.	Midwives.	Total births.
Algoma	476	91	906	Northumberland and Durham.....	91	21	1,264
Brant	24	10	771	Ontario	73	24	903
Bruce	304	91	1,467	Oxford	48	1	1,037
Carleton	410	.....	2,088	Parry Sound	369	21	731
Dufferin.....	118	1	450	Peel	36	1	394
Elgin	52	2	801	Perth	107	33	1,010
Essex	280	50	1,565	Peterborough	178	53	890
Frontenac	139	52	917	Prescott and Russell....	511	110	1,571
Grey	424	27	1,481	Prince Edward	13	3	318
Haldimand	42	.....	415	Rainy River.....	47	2	199
Halton	19	2	420	Renfrew.....	762	184	1,526
Haliburton	151	42	230	Simcoe	310	16	1,717
Hastings	234	57	1,226	Stormont, Dundas and Glengarry	207	14	1,410
Huron	177	2	1,275	Thunder Bay	30	.....	216
Kent	221	9	1,402	Victoria.....	122	21	692
Lambton	159	10	1,231	Welland	43	9	652
Lanark	112	24	752	Waterloo	72	74	1,195
Leeds and Grenville ...	40	2	1,122	Wellington	88	9	1,145
Lennox and Addington.	39	56	453	Wentworth	41	37	1,527
Lincoln	32	.....	616	York	176	82	5,549
Middlesex	46	27	1,565				
Muskoka	293	48	600				
Nipissing	530	70	966	Total	*7,794	1,388	47,323
Norfolk	148	.....	658				

*Thus 16.4 per cent of the whole are returned as giving no physician in attendance, while in Toronto the percentage is but 2.5 per cent.

The following table of municipalities in Algoma shows the wide distribution of the population and of the 447 births recorded, there being 23 registration divisions and several of these include a number of unorganized townships in each. They are extended over an area of some 2,500 square miles :

Births in the municipalities of Algoma in 1898 where no physician was reported in attendance at Births.

	Total number.	Number without physician.
Assignack	11	3
Bruce Mines	9	8
Billings	10	10
Burpee	3	3
Canarvon	8	6
Cockburn Isl	2	2
Chapleau	30	14
Day Mills	32	17
Gore Bay	18	1
Gordon	2	2
Howland	14	9
Hallam	35	2
Johnstone Tp	12	6
Little Current	13	1
McDonald Tp	6	5
Manitoulin Isl., Unorganized	16	14
Massey Station	20	15
Nairn Hyman	21	7
Plummer A	8	1
Rayside	24	3
Sault Ste. Marie	63	11
" Tp	8	3
Thessalon Village	54	16
Lehkumnah	18	16
Thessalon Tp	10	6
	447	181

These two tables are new and are of unusual interest, from the standpoint of social evolution, as giving an accurate idea of the appreciation in which the practice of medicine is held in the province, of the advance of settlement and of the availability of medical men in the different new districts and the financial ability of the people to employ their services. For practical purposes it may be assumed, since the Division Registrars are required to make their returns as complete as practicable, that no physician was employed in those instances where no physician's name is entered in the returns. Thus, in York with 5,549 births returned, there was but 3.5% where no physician was present. On the other hand, in Renfrew, there were 50% of cases where no physician was returned, and practically the same percentage in Algoma. In the whole province there were 16.4% of cases not attended by a physician. What a great assistance the physicians may be in securing complete returns is amply illustrated by these returns; and how much neglected this duty has been in some places is seen by the results of investigation in the cities already referred to.

Another point of interest as bearing most directly on the birth-rate is obtained from the following table, giving the population of some towns and villages in successive periods. In the column for 1897, the population is that taken from the assessment returns for 1896. The birth-rate in such as are stationary or decreasing in population

is illustrated. The low rate in such simply indicates that those persons of a marriageable age, notably the young men, have migrated, as may be proven by reference to the low marriage-rate in such municipalities, or to imperfect returns.

Populations of some towns and villages where population has increased slowly, with the birth rate in 1897.

Towns or villages.	Population, 1871.	Population, 1881.	Population, 1891.	Assessment population, 1896.	Birth rat. per 1,000 in 1897.
Amherstburg	1,936	2,672	2,279	2,171	13.8
Sandwich	2,151	1,143	1,352	1,263	32.5
Bothwell	995	965	897	843	33.2
Vienna	593	528	398	367	24.5
Strathroy	3,232	3,817	3,316	2,946	19.0
Port Dover		1,146	1,213	1,285	16.9
Port Rowan			649	642	10.9
Ingersoll	4,022	4,318	4,191	4,538	29.0
Cayuga	803	830	822	1,116	18.8
Dunnville	1,452	1,808	1,776	1,897	15.0
Port Colborne	988	1,716	1,154	1,148	21.8
Fort Erie	835	722	934	908	26.0
Welland	1,110	1,870	2,035	1,923	15.0
Thorold	1,535	2,456	2,273	2,104	20.0
Port Dalhousie	1,081	1,129	879	1,002	18.9
Goderich	3,954	4,564	3,839	3,766	16.2
Clinton	2,016	2,606	2,635	2,451	19.6
Seaforth	1,268	2,480	2,641	2,411	16.5
Kincardine	1,907	2,876	2,631	3,029	10.5
Southampton	858	1,141	1,437	1,570	25.5
Port Elgin		1,400	1,659	1,342	17.8
St. Marys	3,120	3,415	3,416	3,171	18.9
Mitchell	1,802	2,284	2,101	2,152	18.0
Listowell	976	2,688	2,587	2,516	24.4
Elora	1,498	1,387	1,304	1,370	18.2
Fergus	1,660	1,733	1,598	1,660	17.2
Palmerston		536	2,006	1,987	25.6
Mount Forest	1,370	2,170	2,214	2,437	9.0
Harriston		1,772	1,687	1,809	14.9
Oakville	1,684	1,710	1,823	1,900	21.1
Milton	891	1,302	1,450	1,400	25.0
Aurora	1,132	1,540	1,743	1,700	14.7
Newmarket	1,760	2,008	2,143	2,134	15.0
Port Perry		1,800	1,698	1,506	10.6
Whitby	2,732	3,140	2,786	2,548	20.0
Oshawa	3,185	3,992	4,066	4,008	23.9
Bowmanville	3,034	3,504	3,377	2,925	22.2
Newcastle	1,109	1,060	787	596	18.4
Port Hope	5,114	5,585	5,042	4,607	24.0
Millbrook		1,118	971	960	22.9

From these several tables the following facts may be summarized :

1st. That the older the settlement of any county, or the earlier the period at which an agricultural district was filled up with population the less the present relative number of settlers, in those periods of life during which children are born, in comparison with the number of population, and if this population be not increased, the lower, proportionately, will be the birth rate, and the greater the number of deaths relatively of persons in the later periods of life. To illustrate the point the following table gives the number of deaths at different age periods in two counties and two towns. Renfrew has increased rapidly, while Prince Edward has rather decreased ; Belleville city has remained stationary, while Owen Sound has notably increased.

Percentage of deaths by age periods in certain counties and towns.

	Under 1 yr	1 year.	2 years.	3 years	4 years.	5-9.	10-14.	15-19.	20-24.	25-29.	30-34.	35-39.	40-41.	45-49.	50-59.	60-69.	70-79.	80 and over.	Not given.
Renfrew County.....	24	5	3	2	3	3	2	3	6	5	2	3	2	2	5	8	8	9	1
Prince Edward County.....	16	4	2	1	2	3	2	2	1	3	3	2	3	2	5	12	23	16	..
Belleville	20	5	1	0.5	..	2	2	3	3	9	3	6	2	2	4	11	17	9	..
Owen Sound	21	3	2	3	1	2	2	3	5	3	3	5	5	3	9	9	7	8	..

2nd. That as seen in Table I in the more newly settled counties, as Bruce, Simcoe, Muskoka, and Parry Sound, the birth rate is decidedly higher.

3rd. That in the most recently settled districts of Algoma, Nipissing and Rainy River the birth rate, even though necessarily incomplete, is high.

4th. That in certain cities the birth rate is lower than in others, and it is seen to be always lower in those where population has become more or less stationary, and where the age at marriage both of males and females is proportionately higher than where population is increasing rapidly by immigration, as is well seen in the subsequent paragraph relating to marriages.

Such are some of the principal conclusions which, as have been stated, are fully borne out by the data supplied in the tables.

We have, however, to deal with other facts which are obtained from the returns, and from such data as are obtainable from the assessment returns. There are in Ontario a number of cities which during the last nine years have shown a large increase in population, such as Toronto, Ottawa, Hamilton, London, Brantford, Berlin and St. Thomas. Their birth rates are low, absolutely and relatively, in comparison with those of any other country, as may be seen by reference to Table 2. Further, the marriage rate is an average one, as may be seen from the table in a succeeding paragraph dealing with marriages.

The marriage rates are, however, higher than they should be, inasmuch as it is the custom in a certain number of instances for persons residing in surrounding districts to go to neighboring towns to be married. Thus, as will be seen in tables under the paragraph relating to marriages, Toronto, with a marriage rate of 7.6 per 1000, had but 63% of grooms and 85% of brides resident in the city. Hence the true marriage rate would be 5.7. Age at marriage has a direct bearing on the number of children born, and as will be seen from a further table in the same paragraph, there is an upward tendency in the ages of those marrying. Thus the mean age at marriage in the thirteen cities of Ontario in 1897 is, for husbands 29.35, and for wives 25.30. That the rate is, in the instance of wives, as favorable to a normal birth rate as in England, is seen in the fact that for 1896 the rate there was, husbands, 28.43, and for wives, 26.21 years. As has before been stated, the birth rate there in 1896 was 29.7 per 1000, or nearly one-third higher than in Ontario, for the births recorded. On the basis of the English marriage rate, 7.5 per 1000 in 1896, the birth rate in Ontario cities as based on the marriage rate, even though it be taken as 25% less than the recorded rate of 9.8 per 1000, should be nearly that of England, or 29 per 1000. Manifestly, therefore, there is in Ontario cities a birth rate not more than two-thirds of the English average, and even if 10% be added on for incomplete returns, it still approaches that of France.

Assuming, however, after allowing for imperfect registrations, that the basis established between marriages and births is a fair one, it would seem impossible not to conclude that certain other influences, which may be termed of a social or moral character, must be operative to produce such a low birth rate

In the report of the Registrar-General for 1894, some of these influences were referred to. According to the standpoint from which the subject is viewed by different persons, the duty of the Registrar-General is simply to point out the simple tabulated results of these returns, and leave to economists and moralists to draw lessons from them; or, on the other hand, inasmuch as the population of a state has long been looked upon as the real basis of wealth, it would seem proper to briefly refer to these other causes which seem to influence the birthrate.

Assuming then that it is proper to draw such inferences as may fairly be made from these statistics, it must be acknowledged with regret that, after making every allowance for defects in the returns of births in Ontario, the conclusion seems inevitable that the birth rate of Ontario is lower than under normal conditions, such as with the increase of population generally, it should be. The following table would seem to illustrate this.

Birth Rates and Death Rates in different countries and states per 1,000 population.

Countries.	Births.	Deaths.	Natural increase.
			Per cent.
United Kingdom 1896	29.2	17.1	1.21
England and Wales	29.7	17.1	1.26
Scotland	30.8	16.9	1.39
Ireland	23.6	16.6	.70
Denmark	30.5	15.7	1.48
Norway	30.4	15.2	1.52
Austria	38.0	26.4	1.16
Hungary	40.5	28.8	1.17
Switzerland	29.0	18.8	1.02
German Empire	36.3	20.8	1.55
Prussia	37.0	20.8	1.62
Belgium	29.0	17.5	1.15
France	22.7	20.2	.25
Italy	35.0	24.2	1.08
Canada.			
Ontario 1897	20.9	12.2	.87
Quebec 1896	38.57	20.05	1.852
United States.			
Maine 1896	22.23	16.07	.616
Connecticut 1897	24.9	17.5	.74
New Hampshire	22.4	18.04	.436
Massachusetts 1896	27.0	19.0	.80
Vermont	21.2	16.5	.47
Rhode Island	25.7	19.6	.61

Remembering the remarkably low death rate, which we have reason to believe is nearly correct, it appears that, compared with the New England States, the increase is satisfactory, and indeed most satisfactory, when it is remembered that all of these have within recent years received great accessions to the factory population of French Canadians, whose fecundity is illustrated by the statistics of the Province of Quebec. It is apparent, however, that the rate of increase is notably less than in almost all European countries. If comparison be made of the marriage rates it is apparent, further, that the Ontario rate is an average one.

Thus, in 1896, the marriage rate per 1,000 was :

England.....	7 9	
Scotland.....	7.2	
Ireland.....	5 06	
New Hampshire.....	10.7	(Divorces 1 for 10 marriages.)
Connecticut.....	8.1	
Ontario (1897).....	6.7	

That our population is increasing with average rapidity must, from the economic standpoint, afford a measure of satisfaction. When, however, the practical completeness of the death returns is remembered, it must be apparent that the increase is principally due to the remarkably low death rate. Indeed, were the death rate that of France, the Ontario population would be practically stationary. If we further examine the marriage rate, it appears that no intimate relationship is seen between the low birth rates and counties with low marriage rates. See Table I.

What does seem to be apparent, however, is that counties located in certain sections of the country, and settled at more or less distinctly separate periods, show some generally operative influences affecting the birth rate, and this in counties where the marriage rate is practically up to the average. What seems apparent is that where the populations are largely from European countries and from Quebec, where as yet they may be said to hold to, in some measure, the simpler habits of life of their ancestors—where, indeed, as we may say, life is ruder and more rural—the birth rate is, on the whole, definitely higher, even though the marriage rate may be, as it is in many instances, actually lower. On the other hand, where cities, towns and villages are older and more numerous, where urbanizing influences are greater, where so called modern ideas prevail, and where the life of the people has become more artificial, there may be seen a very general tendency to a lowered birth-rate.

This subject of the tendency to a lowered birth rate, amongst the more advanced peoples of Europe and America has occupied the attention of many statisticians and writers on questions of economic and social reform, and those who are leaders of moral and religious thought during especially the last twenty-five years. To cite the writings of such would require a small treatise; but it may be said that since the time when political economists and philanthropists began, early in the century, to study the problem of over population, as during the years between 1840-50, when the first enormous emigration from the British Isles began, due to depression in agriculture and famine, the question of the limitation of the birth rate by prudential marriages, as urged by Malthus, has never ceased to be a subject of discussion. In still more recent years, however, the question of artificial checks to procreation, has become, as it were, an advance on the teachings of Malthus, and indeed a school of pamphleteers and *soi-disant* philanthropists, in the guise of writers of novels, have brought the teachings of the Neo-Malthusians before the attention of the public, giving their sophistries those alluring and pleasing qualities by which the minds of many men and women are only too readily influenced. It is natural that amongst such writers many should be women; some moved thereto, at times, doubtless, from womanly sympathy for their sisters amongst the poor, borne down with the cares of children; others have been urged to speak from the standpoint of the emancipated woman, whose ambition it is to enter the arena of public affairs and dispute the field with men, and a yet still larger number have adopted this new philosophy from the standpoint of personal selfishness, and declare that they will recognize no duty

which will deprive them of the right to enjoy to the fullest whatever society may bring them of pleasure, and utterly refuse to undergo, if it can be avoided, the pains and inconveniences of maternity, while accepting the social protection, privileges and joys which marriage can bring them.

It would be idle to expect or deny that as the outcome of such theories, methods should follow and be adopted for putting them into practice; and it would be sheer hypocrisy not to acknowledge that the state to day in Canada, by allowing the newspaper press to distribute daily by thousands advertisements teaching the arts of prevention, and by permitting pamphlets of every form and of a still more reprehensible character to be sent broadcast through the mails, is giving its tacit sanction to practices which it makes criminal laws to punish. What is still more remarkable is that the state licenses a business, and allows the druggist to carry on a traffic without let or hindrance in every form of nostrum and mechanical appliance, having for their end such prevention. Physicians too are approached, and it is feared may at times accede to the petitions of their clients, to undo what nature has asserted is a logical outcome of her laws.

This is not the place for teaching public morals, but rather to indicate wherein the state has duties in the interests of public health and economic progress. History gives attestation to the fact that a degeneracy of manners and morals, which in any degree affects the sanctity of marriage and degrades nature's functions, bears its legitimate fruits in national decay and in the destruction of family life. In 1896, French statistics showed that fifty-five Departments out of eighty-seven had decreased in population collectively 399,001 persons from what they had been in 1886. Indeed, in the year 1865 there were but 2.9 per cent. of foreigners in France, while out of the total increase of population during the succeeding twenty-five years, 26.4 per cent. of it was foreign, and largely of Italians. Her debt is the largest in the world, taxation is unbearable, divorces have in recent years notably increased, and prostitution is enormously prevalent. The number of children is less than two to a family, while a general law exists that when the birth rate falls below four in one family, population becomes stationary or declines. That the evils of Neo-Malthusianism are, however, almost as prevalent in certain parts of the North American continent as in France, may readily be concluded from the birth rate in the eastern United States, if that of the foreign-born population be excluded. The sanctity of the marriage tie is disappearing at a rate as never before elsewhere, divorces being as high as one in every eight marriages in Maine, almost as high in New Hampshire, and but little less in neighboring States.

It is manifest, therefore, that if the Anglo Saxon race is to fulfil its destiny on the American continent, and play the dominant part over inferior races in the march of progress, the exponents of its assumed superiority will have to preach a gospel of patriotism of which to-day they seem singularly blind. Social degeneracy has always meant national decay, and it is the simple and moral citizens of to-day who will hold the supremacy to-morrow. The matter is one which ought to be of the highest interest and importance to the teachers and exponents of public morals; although there may be seen in some directions a curious anomaly, whereby those who sanctify marriage and hold its responsibilities inviolable, should at times fail to comprehend that the duty of protecting human life *post natal*, is at least as incumbent upon us as when *pre natal*. The figures, however, of the Report have so many points of interest bearing upon this question, that it will have been deemed sufficient if it has indicated some of the salient conclusions to which they point.

Births in Cities. It will be noticed in Table II., that notable variations exist in the birth rate of different cities, that of Ottawa being highest. This is probably due, in part, to its rapid increase in population during the last two years, thereby making the divisor too low, and partly owing to the fact that a large maternity home registered 137 births as having occurred therein.

The very high rate in Brantford is, likewise, due in part to the population adopted for estimation being too small, but it is, undoubtedly, on the other hand, due to the completeness of the returns. The very low birth rate in Stratford is due to very defective

returns, and applying the correction made in 1898, due to an investigation by the Inspector, the true rate would approximate 23 per 1,000. Belleville returns are likewise defective, as from a statement made by the Division Registrar, are also those of London.

The following corrected table, in which the population by assessment for 1897 is taken, shows the variations due to an incorrect population having been taken:—

Table with corrected Populations in Cities, 1896, 1897.

Cities.	Assessment population.	Registrar-General's estimated population.	Variation.	Cities.	Assessment population.	Registrar-General's estimated population.	Variation.
	1896.	1897.	Increase or Decrease.		1896.	1897.	Increase or Decrease.
Toronto.	183,172	197,938	I. 14,766	St. Catharines..	10,144	9,740	D. 404
Hamilton.	50,035	52,042	I. 2,007	Belleville.	10,399	10,534	I. 135
Ottawa.	53,727	46,913	D. 6,814	Stratford.	10,531	10,091	D. 440
London.	36,224	32,944	D. 3,280	Windsor.	11,915	10,965	D. 950
Kingston.	18,009	20,464	I. 2,455	Chatham.	8,788	9,616	I. 828
Brantford.	16,234	13,547	D. 2,687				
St. Thomas.	11,021	11,010	D. 11	Total.	430,940	436,996	I. 6,056
Guelph.	10,741	11,192	I. 451				

Marriages.

As seen in Table I. the average number of marriages is 6.8 for 1897. There is an increase in marriages in Ontario in 22 counties, and a decrease in 16, amounting to 346, for those counties in which a comparison with 1896 is made in Table I. This is, however, due to more complete returns, as has already been pointed out. In cities, however, while an increase is seen in seven out of thirteen cities, the fact is observed that in Toronto, Hamilton and London, there was a decrease respectively of 100, 19 and 117, which, in view of the notable increase in population, is remarkable. Even in Ottawa, the rate is a decreasing one if the increase in population be allowed for.

The average age at marriage in the several cities is set forth in the following table:

The following Table gives the Marriages by Ages in the 13 Cities in Ontario in 1897.

Cities.	Number of marriages.	Average age, males.	Average age, females.	Cities.	Number of Marriages.	Average age, males.	Average age, females.
Toronto.	1,501	28.45	24.99	St. Catharines.	88	30.77	26.06
Hamilton.	412	29.87	26.31	Belleville.	103	29.63	24.75
Ottawa.	479	28.51	24.45	Stratford.	45	31.80	26.54
London.	319	29.17	25.23	Windsor.	615	27.78	24.36
Kingston.	195	28.92	24.77	Chatham.	115	28.82	25.10
Brantford.	137	29.70	25.45				
St. Thomas.	101	28.00	24.11	Total.	4,208	29.35	25.30
Guelph.	98	30.23	26.86				

After deducting the marriages of non-residents, the rate for these cities gives the following average rate per 1,000 in Toronto and Windsor, taken as illustrations. The percentage given is that of groom and bride residing in city and elsewhere.

Marriages by Residents.

	Toronto.				Windsor.			
	Groom.		Bride.		Groom.		Bride.	
In City	1,095	63%	1,277	85%	47	8%	61	10%
“ Ontario	309	20%	190	11%	... (Not separated from Canada.)			
“ Canada	24	15%	12	0.8%	44	7.9%	51	8.3%
“ Foreign	7	4%	22	1.5%	524	85%	81	81%

The extent of the marriage of non-residents in different counties is further illustrated by the fact that of the licenses returned by counties, 2,479, or only 13 per cent. are for marriages solemnized elsewhere. It thus appears that with a marriage rate of 9.8 per 1,000 the annual birth rate of these cities is only 20.6. Assuming that the birth

Table showing percentage of Married Persons in each Five-Year Period by Counties.

	Total number of married persons.	Percentage of Married Persons							
		15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 and over.	
Algoma	452	19%	34%	25%	11%	5%	9%	4%	
Brant	464	7	37	29	13	6	5	3	
Bruce	758	7	36	31	14	6	1	3	
Carleton	1,320	9	39	28	11	5	2	5	
Dufferin	256	3	35	37	12	4	2	5	
Elgin	608	10	34	29	14	4	2	4	
Essex	1,940	11	43	24	9	4	2	4	
Frontenac	686	12	33	29	10	7	3	5	
Grey	810	4	60	30	16	6	3	5	
Haldimand	326	0	32	31	14	8	2	3	
Halton	210	8	32	30	13	5	3	5	
Haliburton	64	22	33	26	11	4	3	5	
Hastings	854	11	40	26	9	6	3	5	
Huron	886	4	29	35	18	6	3	4	
Kent	868	13	40	25	10	5	2	3	
Lambton	842	10	36	28	15	5	2	3	
Lanark	442	10	39	27	10	6	3	4	
Leeds and Grenville	922	8	38	37	12	6	2	6	
Lennox and Addington	332	15	44	22	11	4	2	3	
Lincoln	404	12	40	22	11	4	2	4	
Middlesex	1,408	7	37	28	12	6	3	3	
Muskoka	274	16	40	24	11	6	2	2	
Norfolk	474	15	43	22	8	4	2	6	
Northumberland and Durham	880	8	36	31	13	5	3	4	
Nipissing	346	21	42	24	7	3	9	1	
Ontario	470	8	34	31	14	6	3	4	
Oxford	684	8	44	22	11	7	2	6	
Peel	286	3	34	27	20	11	3	2	
Perth	614	5	34	34	14	5	2	5	
Peterborough	460	5	36	33	12	8	2	3	
Prescott and Russell	586	15	48	18	7	4	1	6	
Prince Edward	256	17	37	22	13	3	2	5	
Parry Sound	312	20	44	20	9	1	1	4	
Rainy River	124	8	34	31	17	7	1	2	
Renfrew	710	10	40	29	11	3	2	4	
Simcoe	1,110	12	38	30	9	4	2	5	
Stormont, Dundas and Glergary	830	9	38	27	11	5	3	6	
Thunder Bay	136	13	39	19	15	3	5	4	
Victoria	450	9	38	28	12	5	2	3	
Waterloo	688	6	41	31	10	3	1	5	
Welland	556	9	45	26	12	6	4	6	
Wellington	754	5	30	35	14	6	3	5	
Wentworth	1,098	6	36	31	12	6	2	6	
York	3,636	7	39	29	42	6	3	4	
Total	30,586	9	38	28	12	5	2	4	

rate approaches roughly 2 to 1 of deaths in Ontario, or that an average marriage rate of 7.9, is associated with a birth rate in England of 29.7, the birth rate in Ontario should be 25.5 per 1,000.

Taken in conjunction with the following table of percentage of marriages in the several life periods by counties, this table affords evidence similar to that in other countries that there is a distinct tendency to delay marriage, which means necessarily that the proportion of marriageable persons in any community decreases with each semi-decade, and bears a close relationship to the question of a decreasing birth rate.

Thus, as was pointed out in the report for 1894, in a specially prepared table of persons married in Toronto and to whom children born were registered within the succeeding eighteen months, the proportion of children born in each semi-decade was as follows :

Table from Report of 1894.—Number of Marriages and Births by Age Periods in Toronto in 1892.
Marriages (1,140 total).

Age periods	15-20	Per cent. of whole	20-25	Per cent. of whole	25-30	Per cent. of whole	30-35	Per cent. of whole	35-40	Per cent. of whole	40-45	Per cent. of whole
Totals	145	12.7	571	50	571	24.6	86	75	87	2.9	20	1.7

Births.

Age periods	15-20	Per cent. of whole	20-25	Per cent. of whole	25-30	Per cent. of whole	30-35	Per cent. of whole	35-40	Per cent. of whole	40-45	Per cent. of whole
Totals	49	13.5	193	53.4	93	25.7	17	4.7	6	1.6	.....	.....

These figures show that 87.3 per cent. of all marriages took place within the first 30 years or under of life, leaving but 12.1 per cent.; also that 92.67 per cent. of these births occurred with mothers of 30 or under, leaving but 6.3 per cent. They also show that the first three periods have a greater percentage of births relatively to marriages by 0.8 per cent., 3.4 per cent. and 1.17 per cent. respectively. It may further be remarked that English statisticians have laid it down as a law that had no woman borne children before 30 years the normal birth rate would be reduced by one-third.

DEATHS.

The total recorded deaths in Ontario during the year 1897 as seen in Table 1, are 27,633. Taking the average for the 38 counties whose population has been estimated, the returns show an average rate per 1,000 of 11.8. This rate is 0.9 greater than in 1896, when 24,857 deaths were recorded. As stated in the report for 1896, the present Act was in operation for five months of that year, and gave an increase over the preceding year of 2,396 deaths for the year. This year adds 2,776, or a total increase over 1895 of 5,172 or exactly 23 per cent. As there have been no notable outbreaks of contagious diseases during the year, it is evident that the increase is due to more complete returns. From the very effective operation of that clause of the Act providing that no burial can take place until registration of the death has been made, this remarkable increase gives the best grounds for the belief that the record of deaths is

practically complete. That the death-rate of Ontario is remarkably low has always been assumed from the records of those cities, whose cemetery regulations have made a burial permit prior to interment necessary, and even this notable per centage of increase in 1897 does not seriously effect the low record. It is a notable evidence of improved conditions of life, and of the advance of scientific medicine that the death-records of all civilized countries show a downward movement. Thus :

	Death rates per 1,000,	
England and Wales, 1896	17.1,	or 17 $\frac{1}{2}$ less than for preceding 10 years.
Rutlandshire	12.8	
Berkshire	13.1	
Surrey	13.3	
Scotland, 1896	16.9	“ “ “
Insular Rural Districts	13.6	
Ireland, 1897	18.4,	slightly greater than for preceding 10
Maine, 1896	16.07	years.
New Hampshire, 1896	18.04	
Connecticut, 1896	17.05	
Quebec, 1896	21.21	

How low the annual death rate is, especially in certain inland counties, situated on the highlands of the province is seen in the following instances, viz.: Bruce 9.7, Dufferin 8.4, Grey 9.5, Halton 9.2, Perth 9.5, Wellington 9.9. These counties while having many small towns and villages, are distinctive in the fact that for the most part they lie on the tableland with an average height approaching 1,000 feet above the sea, and with a soil composed largely of post glacial, deposits of gravel and sandy loams, and have the drainage flowing rapidly towards the Great Lakes. As will be seen in a later reference table to the death rate from tuberculosis, this elevated area shows its healthfulness in a relative immunity from this disease, the rate of the six counties with a total population of 300,398 being but 0.9 in 1,000. A fact of importance in this connection is that in the counties of Lincoln and Welland, where much of the land is heavy clay, the death rates are the highest of all counties except Prescott, which is largely rural, Lincoln being 14.4 and Welland 14.4, with a death rate from tuberculosis of 1.8, or just double that of the central counties.

The now well-known effects of drainage in lessening the prevalence of tuberculosis in those counties in England situated on clay soils, point to a very obvious need in these counties. Carleton, Prescott and Russell, with a large French population, and high birth rate, show also a high death rate, Carleton being 20.3, and Prescott and Russell 16.9. The city of Ottawa however, is included in Carleton, and has a death rate high owing to a large lying-in hospital, as well as three other large general hospitals, much utilized by the new country to the north. The salubrity of the northern wooded districts of the Laurentian area whose death rates have not been calculated separately in this report has been frequently noted, the death rates from tuberculosis being, estimating the population as probably 100,000, less than 0.8 in the 1,000.

Death Rate in Cities—The death rate in cities is estimated at 18.4 on a population of 436,996. The rate is disproportionately high to that of the counties, but if the correction for population, based on the assessment returns, be applied the rate would be somewhat lower than is given in the tables. The cities of Guelph, Stratford and London on the central plateau already referred to maintain the same preeminence for healthfulness as do the counties. The city of Ottawa, for reasons already given, has an abnormal death rate, as compared with other cities.

Diseases by classes.—In this year's report, a rearrangement of diseases by classes has been made in keeping with a proposition being generally accepted for a common system of classification approved of by the American Public Health Association, which includes the

United States, Canada and Mexico, that adopted being the Bertillon of the municipality of Paris, France. This decision has been arrived at after a careful consideration of the question, the object being first to establish uniformity for purposes of comparison and further to adopt a classification simpler and more modern than that of the Royal College of Physicians of England, as respects the most recent scientific views on causation of disease. The classification is a short form, in which the several diseases referred to in Table 13 are included in some one class. The Tables 10, 11 and 12 summarized by counties, cities and towns the extended tables as found in the appendix. It is to be regretted that 2.6 per cent. of all deaths are found in the class of ill-defined causes, while by far the largest number of any class has yet to be included under Class XI., where the major part are returned as due to debility, atrophy, immaturity in infants and to old age. In other respects the returns may be deemed fairly accurate. In Tables 13 and 14, however, the analysis of the classes is given by county and city totals for each disease, of which ninety-two are set forth in the table.

Special Diseases.

Typhoid fever.—This disease shows a mortality of 355. Remembering the general increase this is a remarkably low rate, the total deaths being for the five years, 1893-96 previous, 1,642.

The death rate is 0.15 per 1,000 population. The incidence of this disease largely depends upon the amount and distribution of the rainfall during the summer months, and shows its effects chiefly in rural places, towns and villages without a public water supply, and in those cities where well water is still partially used.

What may be termed typhoid years are indicated in the following table of death rates in the cities and principal towns. Thus the years 1895 and 1896 show a prevalence above the average.

Deaths from Typhoid Fever in Ontario.

Cities.	Ages.									
	1893.		1894.		1895.		1896.		1897.	
	Population.	No. Deaths.	Population.	No. Deaths.	Population.	No. Deaths.	Population.	No. Deaths.	Population.	No. Deaths.
Toronto	190,216	75	192,118	45	194,039	56	195,979	48	197,938	36
Hamilton	50,912	2	50,512	9	51,017	12	51,527	14	52,042	5
Ottawa	45,085	10	45,535	18	45,950	22	46,449	16	46,913	24
London	32,650	9	32,976	7	22,296	12	32,618	7	32,944	8
Kingston	19,638	5	19,864	4	20,062	16	20,262	12	29,464	5
Brantford	13,020	5	13,150	0	13,281	16	13,413	7	13,547	9
St. Thomas	10,583	4	10,688	2	10,794	3	10,901	7	11,010	3
Guelph	10,758	..	10,815	2	10,973	1	11,082	3	11,192	2
St. Catharines	9,362	2	9,455	5	9,549	2	9,644	3	9,740	3
Belleville	10,124	3	10,225	..	10,327	5	10,430	12	10,534	6
Stratford	9,700	2	9,797	4	9,804	3	9,992	2	19,091	1
Windsor	19,539	6	10,644	5	10,750	5	19,857	9	10,965	2
Chatham	9,242	3	9,334	3	9,427	5	9,921	2	9,616	11
Totals	420,959	133	425,163	113	429,399	157	432,675	141	436,996	117

Deaths from Typhoid Fever in Ontario.

Towns.	Ages.									
	1893.		1894.		1895.		1896.		1897.	
	Population.	No. Deaths.	Population.	No. Deaths.	Population.	No. Deaths.	Population.	No. Deaths.	Population.	No. Deaths.
Berlin.....	7,581	6	7,656	5	7,732	3	7,890	4	7,887	..
Brockville.....	8,974	4	9,063	7	9,173	2	9,624	6	9,356	5
Corawall.....	6,947	2	7,016	2	7,086	..	7,156	4	7,227	..
Lindsay.....	6,208	..	6,270	..	6,332	4	6,395	6	6,458	3
Niagara Falls.....	3,415	2	3,448	..	3,482	2	3,516	2	3,551	1
Owen Sound.....	7,653	1	2,729	4	7,806	2	7,884	8	7,962	2
Peterboro'.....	10,115	3	10,216	8	10,318	6	10,411	6	10,525	..
Sarnia.....	6,831	1	6,689	1	6,755	..	6,822	..	6,890	3
Totals.....	37,724	19	550,837	27	58,684	19	59,706	36	59,856	14
Balance of Province ..	1,788,777	321	1,705,876	253	1,723,678	414	1,777,614	374	1,760,526	355
Grand Total....	2,167,460	473	2,189,116	383	2,211,101	588	2,263,492	552	2,257,378	484

Smallpox and Scarlatina. No deaths from smallpox occurred in Ontario in 1897, and scarlatina shows a small mortality, viz. : 169 deaths.

Diphtheria and Croup. This disease ranks first in the causes of deaths amongst the acute communicable diseases, it causing 976. The following list give the deaths for 4 years. Remembering the more perfect registration, the rate for 1897 shows a slight decline.

Thus in 1894 the total deaths were	1075
“ 1895 “	942
“ 1896 “	925
“ 1897 “	976

The deaths in the thirteen Ontario cities in the same four years were :

Deaths from Diphtheria in cities—1893 to 1897.

Cities.	1893.	1894.	1895.	1896.	1897.
Toronto.....	253	110	147	132	161
Hamilton.....	32	72	11	14	19
Ottawa.....	41	124	78	41	44
London.....	61	48	9	10	20
Kingston.....	6	5	26	21	12
Brantford.....	10	10	18	10	8
St. Thomas.....	1	1	8	19	12
Guelph.....	2	2	4	4	1
St. Catharines.....	2	5	3	3	4
Belleville.....	5	1	1	3	2
Stratford.....	2	.....	1	3	3
Windsor.....	3	.....	2	6	8
Chatham.....	1	12	5	4	1

Tuberculosis. For the first time the total recorded deaths in Ontario for this disease have reached 3,000, the total number being 3,154. If, however, the percentage of total increase of recorded deaths be applied to the rate for 1895, there would have been 3,040, so that the rate has not increased, being exactly 11.7 of the total recorded deaths as it was in 1895 and 1896.

This rate includes tuberculous diseases of every kind and gives a rate of 1.4 per 1,000. High as the rate is; it is low compared with most countries in temperate climates.

Thus England has a rate of 1.30 per 1,000, being but 7 per cent. of all deaths.

“ Scotland “ 2.33 “ 1,000, or 13.81 “ “
 “ Ireland “ 2.9 “ 1,000, or 15.5 “ “

The rate of England is a phenomenon very remarkable, since while the death rate in the decennium 1861-70 was 2.46 per 1,000, it had decreased to 1.3 in 1896, or nearly a half less and slightly lower than the rate in Ontario. This is all the more remarkable when it is seen that Scotland and Ireland stand almost at the same rate as England did thirty years ago. With climates similar this must be conceded as being the highest possible test of the progress of that system of public sanitation which has made the English general death rate with its enormous urban population fall as low as that of most rural populations.

Comparing these rates from tuberculosis with neighboring States and Provinces we find the death rate in :

Tuberculosis in Quebec in 1896 to be 1.8 per 1,000
 “ New Hampshire 1897 “ 1.75 “
 “ Maine 1896 “ 2.05 “

Tuberculosis in cities.—Remembering that tuberculosis tends to become especially prevalent where population is densest the following rates in Ontario cities are given.

Death from Tuberculosis in Ontario Cities in 1897 and 1898.

Cities.	1897.		1898.	
	Total deaths.	Ratio per 1,000 of population.	Total deaths.	Ratio per 1,000 of population.
Toronto	464	2.3	468	2.39
Hamilton	83	1.6	73	1.4
Ottawa	134	2.8	121	2.6
London	52	1.6	39	1.2
Kingston	54	2.6	33	1.6
Brantford	25	1.8	16	1.2
St. Thomas	17	1.5	9	.8
Guelph	14	1.2	14	1.2
St. Catharines	15	1.5	11	1.1
Belleville	20	1.8	12	1.1
Stratford	13	1.3	10	.9
Windsor	17	1.5	11	1.0
Chatham	12	1.2	12	1.2

Further interest attaches to the returns for consumption in Ontario for almost fifty years taken from the census returns, which may be assumed not to include other tuberculous diseases.

Deaths from Consumption in Ontario in Census Years.

	Population.	Deaths from all causes.	Deaths from consumption
1851.....	952,004	7,775	763
1861.....	1,396,091	10,160	1,509
1871.....	1,620,851	18,063	2,183
1881.....	1,923,228	22,727	2,395
1891.....	2,114,921	24,211	2,485
1897.....	2,257,378	27,633	3,154

Some idea, however, of the probable incompleteness of early census returns of deaths may be gathered from the following table of deaths of some old counties.

	Deaths per 1,000.	
	1851.	1861.
Brant.....	8.6	7.0
Dundas.....	18.0	5.6
Elgin.....	7.4	7.7
Halton.....	7.3	9.0
Kent.....	12.0	13.2
Prince Edward.....	6.9	6.0
Waterloo.....	8.9	8.5

In Tables 15 and 16 is given a statement of deaths due to tuberculosis in the cities of Toronto and Ottawa by ages and occupations. These are most interesting as illustrating not only how this most fatal disease prevails during the wage-earning periods of life, but also how its incidence is especially upon the wage-earning classes.

The total deaths from other special causes are given in Tables 13 and 14 for the whole Province by counties, as well as the deaths in cities and towns. The Tables will prove of much value for comparative purposes.

The report for the year 1897 being that for the first complete year under the operation of the amended Registration Act of 1896, which has resulted in so notable an increase in the completeness of death returns, with the adoption of the Bertillon System of classification, and the addition of several special tables, will serve to mark the vital statistics of Ontario as now occupying a position for accuracy and completeness of detail in large degree comparable to those of the long-established returns of European countries. That they indicate the prevalence of certain preventable diseases will readily be admitted, but that they also indicate a marked effect of the operation of sanitary laws is abundantly illustrated. That the total mortality of Ontario compares most favorably with that of all other countries is so apparent that we have good reason for asserting that in few, if any countries, is a higher degree of general health maintained, or are greater climatic advantages afforded, whereby the individual may exert his fullest energies with less danger of injury to his physical powers and general well-being.

I have the honor to be, sir,

Your obedient servant,

PETER H. BRYCE,

Deputy Registrar-General.

Report of the Inspector.

TORONTO, January 2nd, 1899.

TO THE HON. E. J. DAVIS,
Registrar General of Ontario :

SIR,—I have the honor to report, that during the past year I visited, for purposes of inspection, the Division Registrars of seventy municipalities within the counties of Brant, Carleton, Dufferin, Frontenac, Halton, Hastings, Lincoln, Lennox and Addington, Middlesex, Northumberland and Durham, Ontario, Peel, Perth, Peterborough, Simcoe, Waterloo, Welland, Wentworth, and York. I find that, as a general rule, these officials are very painstaking in their work, and are honestly endeavoring to secure as complete returns as possible of births, marriages and deaths, but frequently their labors do not seem to be properly appreciated by the members of the council, or the residents of their respective localities. The people do not yet fully comprehend the value of these statistics, and many look upon the outlay connected therewith as an actual waste of money; consequently the Division Registrars do not receive that active assistance and sympathy from the ratepayers to which they are fully entitled. But the greatest drawback of all is the fact that the physicians throughout the Province, with a few notable exceptions, make scarcely any pretence of reporting the birth cases which they attend—the section of the Act requiring their attention to this matter being practically a dead letter. A few instances will suffice to show the extreme laxity displayed by the doctors in this respect:—In Toronto, with birth returns amounting to 4,078, we find that only 856 were made by medical practitioners; St. Catharines shows 200 returns, and only 44 from doctors; in Hamilton, less than one-third of the returns are made by physicians, while at London, out of 352 returns, not more than 27 were credited to the medical fraternity. The Division Registrar of St. Thomas writes as follows. “The medical men make but few returns, with one or two exceptions.” In fact, from enquiries made in all sections of the Province, the same information is obtained, and that is to the effect that the Division Registrars receive but little assistance from the physicians in the collection of their birth returns. This, to a considerable extent, accounts for the apparently extremely low birth rate in Ontario. In regard to death returns, I have good reason to think they are much nearer complete as the section in the Act prohibiting the burial of any dead body until a burial certificate has been secured is a rather difficult one to get over, and I must give the doctors and undertakers credit for pretty strict compliance with the Act in this respect. Of course in some places even this imperative section is occasionally ignored, but any Division Registrar who is at all anxious to have his returns anyways near complete can easily find out the particulars of practically all the deaths that occur in his municipality. Marriages are pretty thoroughly reported, the clergymen, with very few exceptions, giving every assistance in this respect, although some of them are occasionally a little slow in making their returns.

In a former report I made the following recommendations, viz: “The amount due each Division Registrar, as shown by certificate from the Registrar General, should be a lien upon said municipality until paid, and no mutual agreement for commutation should be considered legally binding upon the Division Registrar.” I would again make this recommendation, and in addition would suggest that the Act be changed so that the Department would have the power to appoint a Division Registrar in the place of the

Municipal Clerk in municipalities where the work is not being well done, or where the Councils do not allow the Clerks sufficient salary to enable them to do the work properly.

In regard to the clerical work and the general completeness of the returns received, I have much pleasure in stating that a most marked improvement has taken place since the amendments to the Act came into force. Very few schedules have now to be sent back for correction and as a rule the returns are received promptly in time at this office. The registers at the offices of the various Division Registrars are with few exceptions very creditably kept and the almost unanimous opinion expressed on all sides is that the adoption of these books, combined with the increase in the fee of registration, has done much towards making the collection of vital statistics seem a much more important matter than it formerly appeared to be.

Great strides have been made within the last few years towards the goal of reliable and complete returns, but much yet remains to be done. We must enlist the active sympathy of all classes of the people of the Province in the work, but more especially so of the medical practitioners. Newspapers can and, in many instances do, give valuable aid, as when they choose they can place the value of vital statistics so clearly before their readers that the most skeptical must be convinced; but after all, the physicians are the ones we must place our greatest reliance upon. They can insure practically full birth and death returns if they only put a little more energy in the work and with very little inconvenience to themselves. A strong effort should be made to bring them into line. It is now nearly three years since the amended Act came into force, and by this time all the officials and others whose duties are clearly defined in its several sections should be well posted in these duties, and there is now no reasonable excuse why they should not comply with them. Under these circumstances I would therefore strongly urge that during the coming year prosecutions be instituted in every case where it is evident that through indifference or negligence the provisions of the Act are not being complied with. Such action by the Department would seem to be the only way to stir up a keen interest in vital statistics and I have no doubt but that a few prosecutions in different sections of the Province would awaken our people to the fact that the registration of births, marriages and deaths was a real "live issue" which must be attended to in accordance with the provisions of the Act. I have the honor to be, sir,

Your obedient servant,

R. B. HAMILTON,

Inspector.

TABLE I.

Table shewing the total number of Births, Marriages and Deaths in each County in 1897.

Counties.	Population.		Births.		Marriages.		Deaths.		Totals.		Ratio to 1,000 of the Populatio		
	Number in 1897.	Variation from 1896.	Number in 1897.	Variation from 1896.	Number in 1897.	Variation from 1896.	Number in 1897.	Variation from 1896.	Number in 1897.	Variation from 1896.	Births.	Marriages.	Deaths.
Algonia	17,634	.....	906	.....	226	.....	281	.....	1,413	.....	51.3	12.8	15.9
Brant	38,722	.....	76	.....	232	11	471	2	1,474	63	19.9	6.0	12.2
Bruce	68,642	.....	99	.....	379	21	668	5	2,514	125	21.4	5.5	9.7
Carleton	82,474	.....	51	.....	660	19	1,676	209	4,424	241	25.3	8.0	20.3
Dufferin	23,632	.....	450	27	128	20	199	12	777	5	19.0	5.4	8.4
Elgin	46,087	.....	801	1	304	12	508	43	1,613	56	17.4	6.6	11.0
Essex	59,017	.....	1,565	185	370	52	756	18	3,291	219	26.5	16.4	12.8
Frontenac	49,948	.....	917	14	343	62	692	32	1,952	80	18.3	6.9	13.8
Grey	75,667	.....	1,481	77	405	23	719	32	2,605	.....	19.5	5.3	9.5
Haldimand	24,903	.....	415	13	163	8	263	73	841	94	16.6	6.5	10.5
Halton	28,357	.....	420	15	105	2	215	1	740	18	17.9	4.5	9.2
Haliburton	6,742	.....	230	13	32	10	76	7	338	.....	34.1	4.7	11.2
Hastings	62,880	.....	4,226	66	427	28	717	17	2,370	.....	19.5	6.8	11.4
Huron	70,955	.....	1,275	49	443	82	747	160	2,465	193	17.9	6.2	10.5
Kent	62,368	.....	1,402	165	484	38	729	121	2,565	248	22.5	6.9	11.7
Lambton	58,358	.....	1,231	59	421	22	634	132	2,286	213	21.1	7.2	10.8
Lanark	40,082	.....	752	21	221	29	475	69	1,448	19	18.7	5.5	11.8
Leeds and Grenville	64,693	.....	1,122	72	461	107	813	110	2,396	289	17.3	7.1	12.5
Lennox and Addington	31,959	.....	453	28	166	37	331	86	950	21	17.2	6.3	12.6
Lincoln	26,295	.....	616	100	502	28	462	75	1,280	263	19.3	6.5	10.7
Middlesex	108,334	.....	1,565	65	704	92	1,162	226	3,431	253	14.4	6.5	10.7
Muskoka	17,606	.....	600	.....	137	.....	201	.....	938	.....	34.1	7.7	11.4
Norfolk	32,927	.....	668	17	237	17	400	93	1,295	127	19.9	7.2	12.1
Northumberland and Durham	74,867	.....	32	.....	440	45	868	118	2,572	195	16.9	5.8	11.6
Nipissing	12,511	.....	966	.....	173	.....	294	.....	1,433	.....	77.2	9.9	23.5
Ontario	48,190	.....	903	6	235	25	509	21	1,647	10	18.7	4.9	10.6
Oxford	52,964	.....	1,037	43	342	22	625	28	2,004	7	19.6	6.4	11.8

Peel	26,423	394	31	34	143	27	25	240	7	777	49	14	14.9	5.4	9.1
Perth	54,949	1,010	4	4	307	45	45	524	43	1,811	16	18.4	18.4	5.6	9.5
Peterborough	37,514	890	197	6	230	22	11	451	33	1,511	393	23.7	23.7	6.1	12.0
Prescott and Russe	45,115	1,571	318	6	293	22	11	762	174	2,626	48	34.8	34.8	6.5	16.9
Prince Edward	20,065	318	731	6	128	22	11	249	174	695	48	15.8	15.8	6.4	12.4
C* Ferry Sound	15,638	731	199	6	156	22	11	231	174	1,118	48	46.7	46.7	9.9	14.7
F. Renfrew	4,464	1,925	63	40	62	22	22	148	45	409	86	41.5	41.5	13.9	33.1
F. G. Sturice	48,882	1,717	109	40	355	109	28	635	45	2,516	86	22.5	22.5	7.2	13.0
Stornont, Dundas and Glengarry	74,096	1,410	109	40	555	109	28	894	80	3,166	149	19.0	19.0	5.6	12.7
Thunder Bay	5,779	216	28	28	415	28	28	942	259	2,767	350	37.4	37.4	11.7	20.4
Victoria	35,051	692	32	28	68	25	25	118	39	1,297	36	13.7	13.7	6.4	10.8
Waterloo	53,633	1,165	32	15	223	49	45	380	47	2,124	128	22.3	22.3	6.4	10.9
Welland	3,544	652	57	15	3.4	45	2	585	78	1,349	108	20.0	20.0	8.5	14.4
Wellington	63,151	1,145	157	157	278	2	9	469	26	2,148	29	18.1	18.1	5.9	9.9
Wentworth	83,780	1,527	157	157	377	2	9	626	26	2,148	29	246	18.2	6.5	12.1
York	298,268	5,549	175	175	1,818	97	97	1,017	198	3,093	74	74	18.6	6.1	12.9
Totals	2,257,378	47,323	1,145	1,097	15,293	847	481	27,633	2,681	90,249	3,749	784	20.9	6.8	12.2

TABLE 2
Table shewing the total number of Births, Marriages and Deaths in each City in 1897.

Cities.	Population.	Births.			Marriages.			Deaths.			Totals.			Ratio to 1000 of the Population						
		Number in 1897.	Variation from 1896.		Number in 1897.	Variation from 1896		Number in 1897.	Variation from 1896		Number in 1897.	Variation from 1896.		Births.	Marriages.	Deaths.				
			Increase.	Decrease.		Increase.	Decrease.		Increase.	Decrease.		Increase.	Decrease.							
Toronto	197,938	4,078	.....	168	.....	1,501	.....	100	.....	3,122	154	.....	8,701	.....	114	.....	20.6	7.6	15.8	
Hamilton	52,042	969	.....	159	.....	412	.....	20	.....	676	.....	54	.....	2,057	.....	233	.....	18.6	7.9	13.0
Ottawa	46,913	1,273	75	.....	479	7	.....	7	.....	1,242	160	.....	2,894	242	.....	.....	.....	27.1	10.2	26.5
London	32,944	572	.....	47	.....	319	.....	177	.....	459	69	.....	1,330	.....	155	.....	.....	16.7	11.5	13.9
Kingston	20,464	356	21	.....	195	11	.....	.....	.....	359	18	.....	910	50	.....	.....	.....	17.3	9.5	17.5
Bantford	13,547	408	68	.....	137	7	.....	7	.....	248	.....	20	.....	793	75	.....	.....	30.1	10.1	18.3
St. Thomas	11,010	221	1	.....	101	.....	.....	3	.....	157	.....	3	.....	479	.....	.....	.....	20.0	10.1	14.3
Guelph	11,192	259	19	.....	98	.....	.....	10	.....	134	13	.....	491	32	.....	.....	.....	23.1	8.8	12.0
St. Catharines	9,740	200	41	.....	88	32	.....	32	.....	100	28	.....	448	101	.....	.....	.....	20.5	9.0	16.4
Belleville	10,534	151	8	.....	103	29	.....	.....	.....	187	30	.....	441	67	.....	.....	.....	14.3	9.8	17.8
Stratford	10,091	134	.....	25	.....	45	.....	27	.....	103	.....	.....	282	.....	.....	.....	.....	13.2	4.5	10.2
Windor	10,965	237	.....	20	.....	615	30	.....	.....	169	6	.....	1,021	36	.....	.....	.....	21.6	56.1	15.4
Chatham	9,616	199	34	.....	115	.....	.....	4	.....	161	29	.....	475	63	.....	.....	.....	20.7	12.0	16.7
Total	436,996	9,037	267	419	116	341	77	507	7,177	507	77	666	513	20,422	666	513	.....	20.6	9.6	16.4

TABLE 3.
Table showing the total number of Births, Marriages and Deaths in each Town in 1897.

Towns.	Population.		Births.		Marriages.		Deaths.		Totals.		Ratio to 1,000 of population.				
	Number in 1897.	Variation from 1896.	Increase.	Decrease.	Number in 1897.	Variation from 1896.	Increase.	Decrease.	Number in 1897.	Variation from 1896.	Increase.	Decrease.	Births.	Marriages.	Deaths.
Barrie.....	6,105	28	135	60	27	84	12	279	43	22.1	9.8	13.7			
Brockville.....	9,356	22	202	85	62	131	27	418	80	21.5	9.1	14.0			
Berlin.....	7,887	3	212	108	5	111	4	134	13	26.9	13.7	14.1			
Braintree.....	1,560	3	81	40	11	57	9	137	15	51.9	25.6	8.3			
Brampton.....	3,577	43	43	37	11	125	37	361	33	12.0	10.3	15.9			
Cornwall.....	7,227	176	176	60	10	125	37	361	33	24.3	8.3	17.3			
Cobourg.....	5,311	73	73	40	10	71	9	184	13	13.7	7.5	13.3			
Cayuga.....	904	15	15	11	3	15	3	39	4	16.6	12.1	14.4			
Goderich.....	4,222	11	61	40	20	55	26	156	55	14.4	9.4	13.0			
St. Lindsay.....	6,458	127	127	70	8	78	15	275	22	19.6	10.8	12.1			
St. L'Original.....	1,102	4	21	7	7	10	2	38	14	19.0	6.3	9.0			
Milton.....	1,595	5	43	11	3	21	8	75	9	26.9	6.9	13.1			
Nap.see.....	3,776	8	71	12	30	52	8	177	8	18.8	14.3	13.8			
Niagara Falls.....	3,551	92	71	54	30	71	18	247	38	25.9	23.6	20.0			
North Bay.....	2,431	101	101	26	38	24	11	151	98	41.5	10.7	9.9			
Orangeville.....	3,258	35	35	33	10	31	3	99	5	20.6	8.5	11.6			
Owen Sound.....	7,962	7	164	68	4	47	3	188	23	42.7	10.1	17.6			
Perry Sound.....	2,670	114	114	27	27	47	3	527	15	25.7	9.8	14.5			
Peterboro'.....	10,525	271	271	103	16	153	10	322	21	37.0	10.8	18.0			
Pembroke.....	4,885	181	181	53	6	58	8	182	18	25.5	10.4	16.8			
Perth.....	3,449	88	88	36	21	53	17	155	48	16.6	11.6	14.6			
Pictou.....	3,615	60	60	42	26	53	25	150	97	19.3	11.6	10.5			
Port Arthur.....	3,618	70	70	42	35	38	25	186	61	29.2	11.8	22.6			
Rat Portage.....	4,500	20	20	53	20	102	46	286	61	19.4	15.8	14.6			
Sarnia.....	6,890	134	134	109	15	101	41	231	24	32.7	15.7	12.0			
Sault Ste. Marie.....	3,822	125	125	60	20	46	9	146	27	20.0	15.9	13.6			
Simcoe.....	2,941	59	59	47	8	69	5	254	12	28.9	6.9	13.4			
Toronto Junction.....	5,151	149	149	36	17	36	5	118	6	18.1	6.2	10.7			
Walkerton.....	3,367	61	61	21	8	17	4	65	1	8.9	5.8	5.2			
Welland.....	3,238	29	29	19	1	40	8	112	4	16.6	6.8	13.0			
Whitby.....	3,064	51	51	21	1	40	8	112	4	16.6	6.8	13.0			
Woodstock.....	9,147	147	147	75	6	113	8	335	24	16.0	8.2	12.3			
Totals.....	147,164	3,322	3,322	1,578	311	2,041	291	6,341	622	22.5	10.7	13.8			

The Towns of L'Original, Sault Ste. Marie and North Bay included in the above totals have been omitted from Table 6.

TABLE 4.
Illegitimate Births, Twins and Triplets in the Province.

Illegitimate Births.		Ratio to 1,000 births.	Number of pair of twins.	Number of cases of triplets.
No.	Proportion to whole number of births.			
728	One to every 65 births.....	15.4	441	9

TABLE 5.

Births in the Province in 1897, shewing the proportion of Male to Female Births

Sex.	January.	February.	March	April.	May.	June.	July.	August.	Septemb'r	October.	Novemb'r	Decemb'r.	Total.
Males	2,113	1,894	2,313	2,012	2,052	1,915	2,097	2,174	2,135	2,034	1,778	1,837	24,354
Females	1,985	1,924	2,142	2,026	1,939	1,817	1,907	2,082	1,975	1,773	1,711	1,688	22,969
Total.....	4,098	3,818	4,455	4,038	3,991	3,732	4,004	4,256	4,110	3,807	3,489	3,525	47,323
Male births to 100 female births	106.4	F to M. 101.6	107.9	F. to M. 100.7	105.8	105.3	109.9	103.4	108.1	114.7	103.9	108.8	105.9

TABLE 6.
Order of Births by Months in the Province.

Months.	Males.	Months.	Females.	Months.	Total Males and Females.
March	2,313	March	2,142	March	4,455
August	2,174	August	2,082	August	4,256
September	2,135	April	2,026	September	4,110
January	2,113	January	1,985	January	4,098
July	2,097	September	1,975	April	4,038
May	2,052	May	1,939	July	4,004
October	2,034	February	1,924	May	3,991
April	2,012	July	1,907	February	3,818
June	1,915	June	1,817	October	3,807
February	1,894	October	1,773	June	3,732
December	1,837	November	1,711	December	3,525
November	1,778	December	1,688	November	3,489
Total.....	24,354	Total.....	22,969	Total.....	47,323

TABLE 7.
Marriages by Months in the Province.

Months.	1896.	Months.	1897.	Quarters.	1896.	Quarters.	1897.
June	1,743	December	1,896	Quarter ending Dec. 31	4,243	Quarter ending Dec. 31	4,733
December	1,583	June	1,682	“ “ June 30	3,782	“ “ June 30	3,577
September	1,468	September	1,633	“ “ Mar. 31	3,450	“ “ Sept. 30	3,522
October	1,383	November	1,453	“ “ Sept 30	3,408	“ “ Mar. 31	3,437
January	1,296	October	1,384	Date not given	21	Date not given	24
November	1,277	March	1,227				
April	1,171	January	1,147				
March	1,057	February	1,063				
February	1,067	April	989				
July	1,050	July	968				
August	890	August	921				
May	868	May	906				
No date given	21	No date given	24				
Total	14,904	Total	15,293	Total	14,904	Total	15,253

TABLE 8.
Marriages by Denominations in the Province.

Denominations.	Number of persons married.	Per cent of whole.	Proportion to the whole number of persons married.
Methodists	10,480	34.3	One to 2.9 persons.
Presbyterians	6,318	20.7	“ 4.8 “
Church of England	5,004	16.4	“ 6.1 “
Roman Catholics	4,370	14.2	“ 7.0 “
Baptists	1,787	5.8	“ 17.1 “
Lutherans	803	2.7	“ 38.1 “
Congregationalists	240	.8	“ 127.4 “
Evangelical Association	231	.7	“ 132.4 “
Mennonites	150	.5	“ 203.9 “
Quakers	48	.1	“ 637.2 “
Other denominations	862	2.9	“ 35.5 “
No denominations given	293	.9	“ 104.4 “
Total	30,586	100.0	

TABLE 9.

Showing the Death rate per 1,000 of Population in each County of the Province for ten years.

Counties.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	Average rate per county for ten years.
Algoma										15.9	
Brant	11.2	12.7	12.3	10.5	11.4	11.3	10.4	12.1	12.3	12.2	11.6
Bruce	7.7	7.4	7.1	8.3	8.3	8.3	8.7	7.9	9.7	9.7	8.3
Carleton	19.6	18.2	18.4	8.9	13.6	15.5	16.9	17.7	17.9	20.3	16.7
Dufferin	9.1	9.7	10.0	10.8	9.6	8.9	7.3	7.9	8.0	8.4	8.9
Elgin	11.4	9.2	9.9	9.2	9.1	9.9	8.5	10.2	10.1	11.0	9.8
Essex	15.8	12.1	12.5	12.0	12.2	11.9	11.6	12.0	12.6	12.9	12.5
Frontenac	10.2	15.9	15.7	13.7	14.5	12.4	11.1	11.2	13.3	13.8	13.1
Grey	7.6	7.0	7.3	7.4	7.7	7.7	7.8	8.1	9.7	9.5	7.9
Haldimand	10.0	8.5	6.7	8.2	10.3	6.6	9.5	8.4	7.7	10.5	8.6
Halton	9.4	8.6	8.9	9.3	9.9	9.0	8.7	8.9	9.2	9.2	9.1
Haliburton	7.3			8.0	9.2	8.6	8.2	10.7	12.4	11.2	
Hastings	10.7	10.7	10.6	8.3	8.9	9.0	7.9	9.2	11.2	11.4	9.8
Huron	7.5	7.3	7.4	8.2	8.5	9.1	7.4	7.7	8.3	10.5	8.2
Kent	9.0	8.6	8.3	8.4	8.7	8.7	9.3	9.2	9.8	11.7	9.1
Lambton	9.8	9.5	9.1	8.1	8.4	9.1	8.0	7.6	8.6	10.8	8.9
Lanark	9.2	8.4	8.9	6.6	7.4	7.6	8.9	6.9	10.2	11.8	8.6
Leeds and Grenville	8.9	8.2	8.8	7.1	7.2	8.2	6.5	7.3	10.9	12.5	8.5
Lennox and Addington	7.4	9.4	7.3	10.1	7.7	7.0	10.2	6.8	9.4	12.6	8.8
Lincoln	13.1	11.4	12.8	10.9	14.3	11.4	13.0	13.1	12.2	14.4	12.6
Middlesex	10.4	10.4	11.6	8.9	10.9	10.1	10.0	9.6	8.7	10.7	10.1
Muskoka										11.4	
Norfolk	8.7	7.3	8.1	8.5	9.5	8.2	8.1	9.2	9.4	12.1	8.9
Northumberland and Durham	8.8	8.1	9.1	10.7	10.1	9.7	10.5	9.9	10.1	11.6	9.9
Nipissing										23.5	
Ontario	10.0	9.3	9.4	9.8	11.0	10.3	10.0	9.8	10.2	10.6	10.0
Oxford	11.3	10.9	11.1	9.7	11.4	10.9	10.9	10.3	11.3	11.8	10.9
Peel	11.0	9.2	7.8	7.7	7.5	7.9	7.8	7.1	9.4	9.1	8.4
Perth	8.4	8.3	8.2	8.9	9.1	8.1	8.9	9.0	8.8	9.5	8.7
Peterborough	10.6	10.6	11.4	11.1	12.1	10.8	12.6	10.4	11.2	12.0	11.2
Prescott and Russell	13.1	14.3	14.3	10.6	12.9	11.7	14.9	11.7	13.1	16.9	13.3
Prince Edward	11.4	10.1	11.3	11.1	11.5	11.6	12.8	9.7	13.8	12.4	11.5
Parry Sound										14.7	
Rainy River										33.1	
Renfrew	8.2	8.8	7.2	7.7	9.5	9.6	10.6	9.9	12.2	13.0	9.6
Simcoe	8.0	8.0	6.4	8.1	8.1	8.2	9.3	7.4	10.7	11.7	8.6
Stormont, Dundas and Glengarry	5.5	8.8	9.2	8.5	8.9	8.8	7.3	7.8	9.0	12.7	8.6
Thunder Bay										20.4	
Victoria	7.7	9.1	7.7	9.9	10.9	10.0	9.7	9.0	9.8	10.8	9.4
Waterloo	14.2	11.1	11.9	11.6	10.5	9.9	9.9	10.1	10.1	10.9	11.0
Welland	10.9	11.1	9.4	12.4	10.5	11.1	9.5	11.0	12.1	14.4	11.2
Wellington	9.1	10.0	9.2	10.1	10.6	9.8	10.3	9.5	9.5	9.9	9.8
Wentworth	15.8	15.1	14.4	13.2	11.7	13.1	12.5	12.7	13.2	12.1	13.4
York	19.3	19.0	16.3	15.9	16.4	16.1	13.1	13.2	12.4	12.9	15.4
Average rate	11.0	10.7	11.1	10.2	10.7	10.6	10.3	10.1	10.9	12.2	10.8

Owing to the changing of the territorial boundaries in Algoma, Nipissing, Muskoka and Parry Sound, they have been inserted in this table for 1897 only.

TABLE No. 10.
Recapitulation by Classes of Diseases by Counties, 1897, including Cities and Towns.

Cause of Death.	Sex.		Nativity.		Social condition.		Ages.					Months.												Totals.																	
	Male.	Female.	Canada.	Foreign.	Single.	Married.	Under 5.					10-14.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45-49.	50-59.	60-69.	70-79.	80 and over.		Not given.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.				
							0-1.	1.	2.	3.	4.																														
I. Communicable (Epidemic) diseases	1142	1155	21995	294	101658	253	388	344	182	171	157	171	323	149	92	76	88	58	35	25	36	53	81	141	103	14	265	285	361	339	156	131	100	116	125	183	154	151	2299		
II. Other general diseases ..	2250	2692	13714	1169	401353	1569	2021	153	69	31	26	27	71	125	391	527	532	412	384	292	316	580	601	320	83	33	384	413	479	482	443	386	402	398	436	389	354	377	4043		
III. Diseases of nervous system and organs of sense	1533	1437	2197	760	1428	648	914	701	192	83	62	48	98	78	81	65	69	62	78	76	96	215	376	392	192	23	265	259	282	248	263	229	302	246	246	224	200	226	2690		
IV. Diseases of the circulatory system	1022	1034	21123	887	48	259	755	1044	12	10	3	8	38	36	60	68	67	55	100	89	119	239	357	392	124	18	190	205	210	169	178	171	173	140	144	165	175	148	2058		
V. Diseases of the respiratory system	1651	1483	32192	309	336	1332	799	1006	618	230	109	56	34	81	57	89	93	107	91	102	124	230	349	455	211	17	387	419	558	379	341	186	115	82	122	184	199	233	3137		
VI. Diseases of the digestive system	1438	1301	22861	453	300	1049	465	630	1032	172	11	24	30	86	83	112	97	93	84	87	59	89	161	231	175	66	19	135	133	148	139	161	181	307	321	319	257	121	116	2744	
VII. Diseases of the genito-urinary system	428	288	409	288	194	98	201	417	9	4	6	5	6	13	11	17	30	43	36	41	36	52	102	137	126	42	6	62	57	79	57	66	51	60	57	59	50	65	53	716	
VIII. Puerperal diseases	274	274	231	42	1	4	254	16	
IX. Diseases of the skin and cellular tissue	26	25	35	13	3	12	15	24	3	1	2
X. Diseases of the locomotor system	17	23	28	12	10	11	19	
XI. Malformations, diseases of infants, diseases of old age	3580	3062	27423	2225	56	3462	1474	1673	3284	87	30	6	4	1	
XII. Suicide	76	27	59	38	6	14	24	65	
XIII. Accidents	723	223	3	476	245	39	371	122	456	20	31	26	23	15	67	64	70	82	43	40	56	32	55	72	76	59	50	18	66	71	61	59	75	87	110	98	88	93	76	65	949
XIV. Ill-defined causes	321	339	456	242	22	141	242	337	8	5	9	10	8	25	28	17	25	34	36	41	37	43	83	141	108	41	19	60	77	60	54	69	55	57	57	50	65	54	62	729	
Totals	12227	13366	196110	7675	348	11791	6832	9010	6187	983	378	514	806	686	944	1139	1192	943	970	746	957	1833	2582	3587	2707	183	2418	2673	2990	2525	2204	2069	2180	2282	2180	1894	1986	27633			

TABLE No. 11.
Recapitulation by Classes of Diseases by Cities, 1897.

Cause of Death	Sex.		Nativity.		Social condition.		Ages.										Months.												Totals.																																																	
	Male.	Female.	Canada.	Not stated.	Single.	Married.	Not stated.	Under 5.					5-9.					10-14.					15-19.					20-24.					25-29.					30-34.					35-39.					40-44.					45-49.					50-59.					60-69.					70-79.					80 and over.					
								0-1.	1.	2.	3.	4.	0-9.	10-14.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45-49.	50-59.	60-69.	70-79.	80 and over.	January.	February.	March.		April.	May.	June.	July.	August.	September.	October.	November.	December.																																								
Communicable (epidemic) diseases.	306	286	516	72	155	31	106	61	37	28	58	118	31	17	25	17	13	5	12	12	12	21	9	5	68	89	79	74	48	38	23	34	34	43	43	37	592																																									
Other general diseases	657	729	1,923	431	367	369	724	109	26	6	7	26	36	93	138	112	110	101	75	88	170	119	67	19	103	129	125	140	106	121	121	102	118	127	98	1,033																																										
Diseases of nervous system and organs of sense	111	368	548	157	111	166	357	229	56	22	18	33	19	25	15	17	19	29	25	56	71	82	22	82	75	61	76	65	80	53	82	65	54	51	59	64	779																																									
Diseases of circulatory system	311	333	2,588	326	32	66	173	407	9	2	1	11	15	20	16	21	37	31	11	100	158	130	29	7	46	64	59	51	70	60	50	43	47	49	56	51	646																																									
Diseases of respiratory system	407	360	1,194	355	19	320	111	305	171	18	22	14	10	18	9	25	20	24	26	21	32	33	88	106	55	6	85	96	120	89	75	47	36	25	28	43	51	76																																								
Diseases of digestive system	415	412	697	123	7	572	33	162	433	32	1	3	35	11	22	33	14	25	14	18	48	48	29	10	3	30	32	35	36	40	64	129	214	140	49	27	31																																									
Diseases of the genito urinary system	150	111	128	125	8	31	51	173	4	1	2	2	7	11	20	9	16	11	25	41	32	35	13	3	22	28	24	23	21	13	23	28	23	14	26	16																																										
Puerperal diseases	57	15	15	12	2	41	14	1	1	1	1	5	12	12	9	9	9	1	3	4	1	1	1	1	6	7	1	9	6	3	5	4	5	3	2																																											
Diseases of the skin and cellular tissue	7	8	11	2	1	4	7	2	1	1	1	1	1	1	1	1	1	1	1	2	1	3	2	1	1	5	1	1	3	1	2	1	2	1	1	15																																										
Diseases of the locomotor system	8	9	9	8	1	4	12	1	1	1	1	3	1	1	1	1	1	2	2	3	2	1	1	1	1	1	2	1	1	4	1	1	4	1	1	17																																										
Malformations, diseases of infancy, diseases of old age	773	683	21,123	345	124	1,067	425	288	1,036	12	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	1,480																																										
Suicide	14	6	9	7	4	5	4	11	1	1	1	1	1	1	2	2	2	1	4	4	1	1	1	1	2	2	2	2	4	2	2	4	2	1	3	1																																										
Accidents	160	56	3,133	68	18	69	24	126	9	5	6	2	15	14	15	24	12	19	10	13	15	13	17	10	4	11	16	12	10	20	20	26	24	22	24	17																																										
Ill-defined causes	42	63	3	62	40	6	20	32	56	3	1	2	2	6	7	7	11	7	3	12	17	8	7	5	6	12	10	8	6	7	7	13	10	8	15																																											
Total	3,661	3,481	35	5,006	2,024	1,147	3,391	11,411	26,445	218	133	106	1,056	2,289	2,888	3,119	2,449	2,928	1,988	2,611	5,222	7,044	3,990	57	570	645	701	637	596	545	639	684	601	534	502	523																																										

TABLE No. 12. Recapitulation by Classes of Diseases by Towns, 1897.

Table with columns: Disease Class, Sex, Nativity, Social condition, Ages, Months, and Totals. Rows include categories like I. Communicable (epidemic) diseases, II. Other general diseases, III. Diseases of nervous system, etc., up to XIV. Ill-defined causes.

TABLE

TOTAL DEATHS BY INDIVIDUAL

	Algona.	Brant.	Bruce.	Carleton.	Dufferin.	Elgin.	E-sex.	Frontenac.	Grey.	Haldimand.	Halton.	Haliburton.	Hastings.	Huron.	Kent.	Lambton.	Lanark.	Letch & Grenville.	Lennox & Addington.	Lincoln.
Communicable Diseases.	Typhoid.....	3	12	9	28	3	10	11	10	3	2	3	10	10	20	12	2	14	1	6
	Smallpox.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Measles.....	1	1	1	6	..	5	3	2	1	..	..	..	1	6	5	3	5	1	..
	Scarlet fever.....	..	..	1	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Whooping cough.....	3	..	6	9	..	1	1	7	3	1	1	1	11	2	1	2	4	2	5
	Diphtheria and croup.....	14	9	9	59	2	24	57	18	11	20	1	5	6	20	20	20	10	12	8
	Influenza.....	5	7	21	29	3	17	8	8	19	4	5	3	12	21	11	17	16	18	12
	Other epidemic diseases.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Pyæmia and Septicæmia.....	1	1	5	9	..	5	6	5	2	..	2	..	4	3	7	13	6	11	..
	Malaria Fever.....	..	..	..	..	1	2	4	2	3	1	..	..	..	..	..	..	..	..	..
Other General Diseases.	Tuberculosis and Scrofula.....	21	44	66	189	28	64	88	103	70	24	16	3	78	62	64	75	70	104	33
	Syphilis.....	..	1	..	3	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..
	Cancer.....	8	10	22	40	10	31	17	19	28	17	11	4	17	37	27	26	12	25	6
	Rheumatism and Gout.....	2	1	3	6	1	..	..	4	7	4	..	..	5	3	3	6	..	..	..
	Diabetes.....	1	2	10	10	2	4	3	8	1	3	2	1	1	6	5	7	4	9	1
	Other General Diseases.....	1	6	9	19	3	7	10	17	8	8	5	2	4	7	8	10	1	6	1
	Alcoholism.....	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Encephalitis.....	2	3	..	14	5	9	12	10	..	2	3	..	2	4	13	6	3	5	..
	Simple Meningitis.....	1	4	7	27	2	7	11	6	11	1	3	..	13	13	25	7	5	14	4
	Epidemic Cerebro-spinal Meningitis.....	..	..	5	15	1	4	7	7	15	2	1	2	4	2	11	1	3	11	..
Diseases of the Nervous System.	Congestion and Hemorrhage of the Brain.....	2	..	1	..	1	4	4	8	2	4	2	21	31	15	12	16	40	9	13
	Softening of the Brain.....	..	1	2	1	..	2	2	2	1	2	..	..	..	5	2	..	..	..
	Paralysis without specified cause.....	4	8	19	37	9	21	28	26	15	10	13	1	27	29	14	27	13	31	21
	Insanity.....	3	1	1	1	1	1	1	1	1	..	..	..	1	1	..	..	..	2	1
	Epilepsy.....	2	3	3	..	..	2	5	3	..	..	..	..	4	5	1	4	5	2	3
	Convulsions (n't puerperal).....	11	15	9	57	..	9	8	21	21	2	7	5	16	4	11	12	15	10	6
	Other Nervous Diseases.....	1	1	3	2	..	3	..	..	6	2	..	..	5	10	6	1	..	2	3
	Pericarditis.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Endocarditis.....	1	2	1	2	1	1	5	1	1	..	..	..	..	1	2	..	..	5	1
	Organic Heart Diseases.....	8	27	48	60	10	22	30	20	48	20	10	2	21	46	47	17	19	35	27
Diseases of Circulation.	Angina Pectoris.....	..	1	1	..	..	4	4	..	..	2	..	1	2	3	..	..	..	..
	Diseases of the Arteries, Atheroma, Aneurism, et c.....	3	..	7	5	..	5	6	3	1	..	1	..	1	..	..	..	4	..	..
	Other Diseases of the Circulatory System.....	8	26	17	39	3	13	30	21	8	1	1	2	9	9	34	35	9	33	3
	Acute Bronchitis.....	9	4	7	29	4	4	5	9	9	1	3	1	8	4	8	3	7	1	3
	Chronic Bronchitis.....	5	9	8	11	..	1	6	7	10	2	6	1	11	8	9	9	2	2	4
	Broncho-pneumonia.....	..	1	28	1	3	7	2	6	1	1	..	..	2	3	1	..	..	..	2
	Pneumonia.....	18	46	41	79	9	33	29	46	29	7	8	1	54	57	45	27	27	64	16
	Pleurisy.....	1	1	1	6	..	2	4	2	2	..	..	..	1	4	1	1	3	..	..
	Cong's'n of the Lungs (including pulmonary apop.).....	9	3	19	38	6	11	8	8	24	5	9	1	16	10	8	13	11	13	1
	Asthma and Emphysema.....	2	..	4	9	1	1	2	6	3	..	..	..	5	5	4	5	2	5	4
Diseases of Digestion.	Other Diseases of the Respiratory System.....	..	..	..	..	1	..	..	..	..	..	..	..	..	1	1	..	..	1	
	Ulcer of the Stomach.....	..	..	2	4	2	2	..	1	1	1	1	3	..	9	..	3	1	1	
	Other Diseases of the Stomach (Cancer excepted).....	3	5	6	7	4	2	6	3	6	1	2	..	2	6	10	5	4	5	2
	Infantile Diarrhoea and Gastro-enteritis (Cholera Infantum).....	8	14	19	98	2	19	42	30	12	12	4	3	23	16	26	19	19	27	10
	Diarrhoea and Enteritis (not infantile).....	1	3	15	10	3	10	8	14	14	4	3	..	7	9	10	4	4	6	7
	Dysentery.....	..	3	1	9	..	5	..	1	..	..	..	3	4	7	1	4	3	1	..
	Hernia and Intestinal Obstruction.....	1	2	6	10	..	4	6	4	2	4	..	..	4	6	3	4	4	3	..

No. 13.

DISEASES BY COUNTIES IN ONTARIO, 1897.

Middlesex.	Muskoka	Norfolk.	Northumb'd & Durhm	Nipissing.	Ontario.	Oxford.	Peel.	Perth.	Peterborough.	Prescott & Russell.	Prince Edward.	Parry Sound.	Rainy River	Renfrew.	Simcoe.	Stor., Dem. & Gleng'y.	Thunder Bay.	Victoria	Waterloo	Welland.	Wellington.	Wentworth.	York.	Totals.	
15	1	8	12	2	11	5	3	9	1	6	..	3	10	6	6	9	..	6	7	5	11	9	41	355	
5	..	1	2	2	15	1	1	1	8	1	7	..	3	80
3	..	..	6	..	..	4	4	2	2	..	..	..	3	11	3	3	1	1	..	..	..	2	92	169
9	1	2	4	..	1	1	6	6	3	26	2	2	2	2	3	3	1	1	..	..	..	6	5	163
43	4	19	18	16	11	15	12	10	52	11	17	12	1	30	29	46	4	4	26	21	9	28	187	976	
34	1	9	16	16	11	18	28	5	3	18	4	7	12	25	10	31	1	9	17	9	14	6	24	549	
9	3	6	3	..	5	3	..	7	..	..	..	..	..	1	2	2	..	..	..	..	..	..	1	7
3	..	5	1	..	6	2	..	..	2	..	..	2	1	2	3	5	..	..	5	5	4	10	30	193
128	13	43	107	20	72	56	37	49	54	83	25	15	14	57	110	122	10	40	44	51	90	126	551	3,154	
44	7	13	21	3	23	35	8	26	10	16	14	3	..	13	26	36	4	11	21	13	29	39	140	927	
10	1	9	9	..	1	3	1	5	4	4	1	..	..	3	6	6	..	1	2	2	3	5	9	126
5	1	5	2	1	3	4	1	6	1	1	1	1	..	2	3	3	1	2	4	2	3	3	19	151	
16	5	2	8	5	3	5	1	9	6	7	1	..	1	16	15	16	1	5	8	2	5	11	35	317	
8	..	2	6	1	4	7	..	7	1	7	2	1	6	9	6	3	2	2	6	4	..	2	8	194	
27	6	2	14	..	8	4	3	18	8	6	4	..	..	3	17	8	3	5	6	5	13	10	86	428
3	..	3	..	..	7	1	..	..	2	1	..	..	..	1	4	8	1	5	5	5	6	6	19	171
34	2	17	29	4	17	9	21	12	5	5	4	2	2	4	18	8	3	10	9	11	10	36	40	511	
2	..	1	1	..	4	1	2	..	..	1	..	..	..	4	..	..	..	1	1	..	..	2	10	54
34	3	21	30	1	20	17	4	15	9	14	10	7	..	5	11	22	..	12	5	16	14	22	69	730	
6	..	4	..	..	3	2	..	..	..	1	..	..	..	1	1	..	..	2	2	..	..	7	12	35
19	1	5	..	..	1	3	..	4	2	6	1	..	1	2	8	1	..	2	4	3	2	4	10	113
2	8	9	22	2	9	6	5	13	13	18	1	17	8	18	20	18	5	7	25	10	14	18	104	624	
5	3	1	1	2	1	5	1	1	1	..	3	..	..	4	4	5	2	3	3	3	3	5	9	110
5	..	..	..	..	1	1	..	..	..	..	..	1	..	..	..	3	..	..	..	..	1	..	4	9
65	8	20	24	7	21	24	10	27	18	27	21	8	2	16	31	25	6	12	21	9	27	58	237	1,270	
2	1	1	1	..	1	1	..	..	..	..	2	..	..	1	..	..	..	1	3	1	..	1	11	52
..	..	..	4	..	1	..	..	..	..	1	..	..	..	..	..	2	..	1	..	2	..	2	87	176
11	5	5	19	2	15	17	12	2	8	4	1	2	7	17	29	18	..	8	10	9	12	2	21	542	
27	6	4	5	..	2	8	4	8	7	13	1	6	5	9	24	9	5	3	12	6	12	6	59	266	
16	5	6	11	3	11	7	4	9	8	5	1	2	1	3	12	13	..	5	9	5	9	18	43	322	
11	2	1	1	1	1	2	10	2	2	1	3	2	..	2	5	..	2	1	2	3	2	6	26	144	
62	9	21	70	21	27	63	13	27	19	21	17	6	2	32	46	54	4	19	36	27	26	74	199	1,566	
4	..	2	3	1	1	3	1	2	..	3	1	2	..	2	1	2	..	1	3	3	2	4	6	77	
34	3	14	14	7	5	12	7	8	10	8	5	2	3	11	27	22	6	15	16	15	15	12	29	522	
2	1	1	5	..	2	1	1	1	..	1	3	..	..	5	4	7	1	2	6	1	..	5	14	122
4	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	2	3	18
2	1	..	7	1	1	..	..	..	..	..	..	..	..	..	1	3	..	4	2	1	2	3	9	69
3	..	..	6	..	5	6	..	3	3	..	..	3	..	3	10	8	1	..	5	..	1	7	21	167
35	3	16	19	15	13	11	3	12	13	56	3	16	11	41	22	31	7	7	16	13	13	26	195	1,119	
17	2	11	10	1	7	6	3	3	3	7	4	3	8	14	11	4	..	6	1	2	5	15	21	300	
5	1	1	1	..	5	1	2	..	3	1	..	1	..	5	5	..	..	1	1	..	..	6	11	92
2	..	..	3	..	2	2	..	..	2	..	..	1	1	..	3	2	1	..	3	1	5	2	14	110

TABLE No. 13.

TOTAL DEATHS BY INDIVIDUAL

		Alghna.	Braut.	Bruce.	Carleton.	Dufferin.	Elgin.	Essex.	Frontenac.	Grey.	Haldimand.	Halton.	Haliburton.	Hastings.	Huron.	Kent.	Lambton.	Lanark.	Leeds & Grenville.	Lennox & Addington.	Lincoln.	
Diseases of Urinary System.	Oth'r Diseases of the Int'st.	1	3	2	3	1	2	1	2	1	6	2	2	3	3	2	11	7	8	11	5	1
	Diseases of the Liver	6	8	7	7	8	8	4	10	3	3	3	1	7	5	2	19	7	10	7	6	6
	Peritonitis (n't puerperal)	2	5	1	16	1	6	7	4	5	3	1	1	7	9	7	9	2	4	1	6	6
	Iliacacæ's (typhlitis, perityphlitis, appendicitis)	1	2	1	1	2	2	2	1	5	1	3	1	1	9	3	3	6	1	2	5	2
	Acute Nephritis	1	2	6	14	2	2	7	6	6	1	1	1	1	4	3	5	3	3	2	2	1
	Bright's Disease	1	5	7	17	3	6	11	6	6	5	3	1	1	10	9	5	6	7	13	3	7
	Other Diseases of the Kidneys and Adnexa	1	1	1	2	4	1	3	4	7	1	1	1	1	10	5	1	1	1	2	1	1
	Vesical Calculi	1	1	1	5	1	1	1	4	4	3	2	1	1	5	3	2	3	1	1	1	2
	Diseases of the Bladder	1	1	1	5	1	1	1	4	4	3	2	1	1	5	3	2	3	1	1	1	2
	Diseases of the Male Genital Organs	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Metritis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Other Dises of the Uterus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Ovarian Cysts and other Ovarian Tumors	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	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
	Puerperal Septicæmia	4	7	7	11	1	3	4	2	7	4	2	1	1	2	2	3	4	3	5	1	6
	Puerperal Albuminuria and Convulsions	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Other accidents of Pregnancy sudden death	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Puerperal Disease of the Breast	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Dis. of Locotion, Skin.	Erysipelas	3	4	4	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Other Dis. of the Skin & its Adnexa (ancerexcept'd)		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pott's Disease		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dis. of Bones and Joints	Dis. of Bones and Joints	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Amputation (for unspecified disease)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Malformations.	Still-Births	9	23	19	95	2	2	27	14	25	1	1	2	16	14	37	27	20	11	2	12	
	Congenital Debility and Malformations	26	15	31	102	12	23	77	32	45	12	15	11	47	62	21	13	13	37	30	30	
	Other Diseases of Infancy	24	23	33	88	9	3	19	9	10	3	2	10	7	17	17	10	8	8	3	3	
	Senile decay	18	70	82	111	24	65	58	90	117	44	28	7	87	109	48	55	65	98	52	52	
Suicide.	Poison	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Strangulation	2	2	2	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	
	Gas Poisoning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Accidents.	Drowning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Firearms	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Fractures & Dislocations	7	10	12	18	5	13	8	6	11	5	2	9	10	18	11	4	12	6	6	6	
	Gunshot	2	2	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	
	Lightning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Drowning	10	5	5	9	2	6	7	4	1	2	3	7	3	8	9	1	10	4	3	3	
	Electric Cars	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Bicycles	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Railways	3	3	3	14	2	1	1	5	3	5	2	2	5	4	4	5	4	4	3	2	
	Burns and Scalds	1	1	6	11	1	1	3	1	1	1	1	1	1	4	4	1	1	1	2	2	
	Homicide	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Accidental Poisoning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Ill-Defined Causes.	Dropsy	1	2	7	8	2	5	4	13	14	6	5	2	9	16	6	2	4	13	3	7	
	Tumors	2	7	13	6	2	2	6	13	12	4	1	7	9	11	4	1	5	6	1	1	
	Other Ill-Defined Causes	5	1	1	6	2	4	6	3	3	2	2	2	7	4	4	3	1	7	2	2	
Totals	281	471	668	1,676	199	508	756	692	719	263	215	76	717	747	729	634	475	813	331	462	462	

--Concluded.

DISEASES BY COUNTIES IN ONTARIO, 1897.

Midd esex	Muskoka.	Norfolk.	Northumb'd & Durh'm	Nipissing.	Ontario.	Oxford.	Peel.	Perth.	Peterborough.	Prescott & Rus-el.	Prince Edward	Parry Sound	Rainy River.	Renfrew.	Simcoe	Stor., Dan. & Gleng'y.	Thunder Bay	Victoria.	Waterloo.	Welland.	Wellington	Wentworth.	York.	Totals.	
5		1	13	2	9	5	1	3	1	2	1	1	1	5	5	18	4	6	5	9	4	6	29	208	
13		4	19	2	1	8	1	1	5	7	1	4	3	6	14	7	4	4	4	7	6	8	27	273	
15	4	6	6	2	12	3	2	3	5	5	1	1	1	..	7	4	..	6	9	4	9	7	55	264	
4		1	1	..	2	10	4	4	2	2	..	1	..	3	10	4	1	2	3	1	6	6	26	142	
8	3		4	..	3	1	1	1	6	6	2	2	1	1	2	5	1	1	6	6	2	3	10	44	175
37	4	1	6	1	3	9	4	5	4	4	7	2	3	4	14	6	1	6	9	7	10	27	32	331	
..	..	..	2	..	..	..	2	1	3	..	2	1	..	..	1	2	..	..	..	..	..	..	26	84
3	..	1	2	1	2	4	1	1	3	1	..	1	..	2	2	1	..	3	..	..	1	4	7	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	80
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	7
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	7
..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	3	13
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	9
5	4	5	3	2	2	3	3	10	10	2	4	..	3	7	9	1	7	8	2	6	2	17	17	185	
3	..	..	..	1	..	..	..	1	..	..	..	1	5	1	..	..	1	..	..	..	..	4	4	27
2	3	..	..	..	2	..	1	..	3	..	..	2	5	2	..	..	..	..	..	..	..	18	61	
..	..	..	..	..	..	..	..	1	2	1	1	..	..	..	..	..	..	..	..	..	..	2	2	1
6	3	..	1	..	..	..	..	1	2	1	1	..	..	..	..	..	..	..	..	..	..	2	2	45
..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	6
..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	5
..	..	3	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	10	27
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	7
25	11	4	22	18	20	32	3	9	36	26	11	9	5	32	28	24	10	21	15	11	19	39	336	1,125	
57	17	16	46	67	28	34	8	26	46	123	18	32	10	54	60	78	14	26	41	26	45	107	71	1,709	
2	1	15	7	12	6	2	1	9	5	26	5	2	2	18	18	1	1	2	1	1	1	168	579		
133	18	42	158	13	57	81	34	88	51	75	42	7	1	79	145	153	2	54	95	76	130	124	258	3,196	
4	..	1	2	..	3	3	3	1	2	..	1	..	..	..	..	..	..	1	1	..	..	1	3	39
3	..	..	1	..	1	1	1	..	1	..	..	..	1	1	1	..	..	3	1	..	..	3	1	44
..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2
..	..	..	1	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	5
..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	2	1	1	2	13
13	8	9	13	7	8	16	5	15	4	8	4	4	2	11	13	16	4	7	10	10	21	26	48	455	
..	1	3	1	1	1	1	..	1	1	..	1	1	1	2	2	..	1	1	1	1	1	1	2	33	
..	1	11	6	2	6	1	1	1	6	2	1	11	9	6	14	4	4	2	1	8	1	5	8	234	
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
2	..	1	2	3	1	2	..	1	2	1	..	1	2	4	2	2	2	..	1	4	..	2	9	101	
5	2	3	4	3	1	2	..	..	..	1	..	4	..	..	2	3	..	..	1	3	..	1	18	93
..	..	..	..	..	..	..	..	..	..	..	2	..	..	2	2	2	..	..	1	..	..	..	1	12
1	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..	..	1	7
20	..	2	12	8	3	10	5	8	4	4	3	1	1	3	7	18	..	5	12	9	7	6	19	296	
13	2	6	4	2	1	7	4	4	5	4	2	2	2	3	5	6	..	5	4	5	5	12	21	234	
11	2	4	6	13	1	4	1	6	..	22	2	2	3	10	8	13	..	2	4	2	2	6	9	191	
1,162	201	400	868	294	509	625	240	524	451	762	249	231	148	635	894	942	118	380	585	469	626	1,017	3,871	27,633	

TABLE No. 14.

Total Deaths by Individual Diseases in Cities in 1897.

General diseases.	Toronto.	Hamilton.	Ottawa.	London.	Kingston.	Brantford.	St. Thomas.	Guelph.	St. Catharines.	Belleville.	Stratford.	Windsor.	Chatham.	Totals.
I.—COMMUNICABLE (EPIDEMIC) DISEASES.														
Typhoid Fever	36	5	24	8	5	9	3	2	3	8	1	2	11	117
Smallpox														7
Measles	2			2	2		1							
Scarlet Fever	75	6	4	3				1	2					91
Whooping Cough	4		6	7	5			1						23
Diphtheria and Croup	161	19	44	20	12	8	12	1	4	2	3	8	1	295
Influenza	13	3	16	5	3	5	7		2	1		1	2	58
Other epidemic diseases	1													1
II.—OTHER GENERAL DISEASES.														
Pyæmia and Septicæmia	29	8	7	6	5	1	2	3	1		2	2	1	67
Malarial Fever					1									1
Tuberculosis and Scrofula	464	83	134	52	54	25	17	14	15	20	13	17	12	920
Syphilis	8	1	3		1	1			1					15
Cancer	114	28	29	17	13	6	8	6	5	7	5	3	6	247
Rheumatism and Gout	5	2	5	3	1				1					19
Diabetes	13	3	5		6	1	1			1	1		1	32
Other general diseases	28	11	10	5	7	1	2	2	1	2	4	4	4	81
Alcoholism, acute and chronic	2		1			1			1					5
LOCAL DISEASES.														
III.—DISEASES OF NERVOUS SYSTEM AND ORGANS OF SENSE.														
Encephalitis	1	2	10	6	5	1	3				1	3	2	34
Simple Meningitis	79	9	24	16	4	3	4	3	5	5	3	5	11	171
Epidemic Cerebro-spinal Meningitis	12		8	1	5			1		2		2	1	32
Congestion and Hemorrhage of the Brain	24	30	1	14	4			8	4	11	6	2	2	106
Softening of the Brain	8	1	2						1			1	3	16
Paralysis without special cause	65	18	26	6	12	2	5	2	4	4	5	6		155
Insanity	8		1	3								1		13
Epilepsy	16	2	2		2	1							1	25
Convulsions (not puerperal)	92	14	50	4	14	13	3	1	2	3	3	4	1	204
Other nervous diseases	7	4	2	2		1	3	1	2	1				23
IV.—DISEASES OF CIRCULATORY SYSTEM.														
Pericarditis	4													4
Endocarditis	14	2	4	3		1						2	1	27
Organic Heart Diseases	198	38	33	33	10	15	8	14	14	11		17	18	409
Angina Pectoris	11		2	1	4	1				1				21
Diseases of the Arteries, Atheroma, Aneurism, etc.	87	1	5		1								5	99
Other diseases of the Circulatory System	7		25	4	15	15	5		2	1	2	8	2	86
V.—DISEASES OF THE RESPIRATORY SYSTEM.														
Acute Bronchitis	49	3	24	12	1	1	1	1	3	2		4		107
Chronic Bronchitis	35	12	7	7	3	6		2	4	3	1	1	1	82
Broncho-pneumonia	19	1	21	2	1			1	1	1		2	2	49
Pneumonia	152	48	67	30	21	21	14	4	10	17	1	10	16	411
Pleurisy	5	3	3	2		1								14
Congestion of the Lungs (including Pulmonary Apoplexy)	16	4	26	7	3		3	4	2	2	2		2	71
Asthma and Emphysema	10	5	5		4					1			1	26
Other diseases of the Respiratory System	3	2		4										9
VI.—DISEASES OF THE DIGESTIVE SYSTEM.														
Ulcer of the Stomach	7	2	2				2	1						14
Other diseases of the Stomach (Cancer excepted)	13	3	4	1	3	3	1	1	2				3	34
Infantile Diarrhea and Gastro-enteritis ("Cholera Infantum")	172	23	172	22	24	10	5	4	6	11	5	4	1	459
Diarrhea and Enteritis (not infantile)	15	10	7	5	1		3	1		2	1	2	2	49
Dysentery	10	1	6	1			3							25
Hernia and Intestinal obstruction	10		7		4	2	1	2	1	1		3	2	33

TABLE No. 14.—Continued.

General diseases.	Toronto.	Hamilton.	Ottawa.	London.	Kingston.	Brantford.	St. Thomas.	Guelph.	St. Catharines.	Belleville.	Stratford.	Windsor.	Chatham.	Totals.
Other diseases of the Intestines	17	5	1	4	.....	.....	.....	2	.....	1	1	.....	3	34
Diseases of the Liver	22	7	5	9	1	1	.....	3	3	2	1	.....	.....	55
Peritonitis (not puerperal)	42	5	9	8	3	2	1	3	3	1	1	5	.....	83
Iliac Abscesses (Typhlitis, Perityphlitis, Appendicitis).....	24	3	.....	2	1	.....	.....	2	1	6	1	.....	1	41
VII.—DISEASES OF THE GENITO-URINARY SYSTEM.														
Acute Nephritis	41	10	13	4	2	2	1	.....	1	4	.....	4	2	84
Bright's Disease	25	17	12	17	2	2	2	3	3	1	1	2	1	88
Other diseases of the Kidneys and Adnexa	26	.....	2	.....	1	1	.....	.....	1	4	.....	.....	.....	35
Vesical Calculi	7	.....	2	.....	.....	.....	.....	.....	.....	.....	1	1	.....	11
Diseases of the bladder	7	2	5	1	4	1	.....	2	1	.....	.....	.....	.....	23
Diseases of the Male Genital Organs	4	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	6
Metritis .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Other diseases of the Uterus	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Ovarian Cysts and other Ovarian Tumors	2	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	4
Other diseases of the Female Genital Organs	1	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	4
XIII.—PUERPERAL DISEASES.														
Puerperal Septicæmia	11	1	9	1	2	.....	.....	2	1	1	1	.....	.....	29
Puerperal Albuminuria and Convulsions	4	.....	.....	2	.....	.....	.....	.....	.....	1	.....	1	.....	8
Other accidents of Pregnancy sudden death	18	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
Puerperal disease of the Breast .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
IX.—DISEASES OF THE SKIN AND CELLULAR TISSUE.														
Erysipelas	2	1	7	1	.....	1	.....	.....	.....	.....	1	.....	1	14
Other diseases of the Skin and its Adnexa (Cancer excepted) .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
X.—DISEASES OF THE LOCOMOTOR SYSTEM.														
Pott's disease	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Diseases of Bones and Joints	10	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14
Amputation (for unspecified diseases)	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
XI.—MALFORMATIONS, DISEASES OF INFANCY, DISEASES OF OLD AGE.														
Still-Births	313	33	80	8	9	15	2	5	13	9	3	6	9	505
Congenital Debility and Malformations	22	86	72	21	11	9	9	11	12	7	6	10	10	286
Other diseases of infancy	168	.....	73	.....	4	14	2	.....	.....	1	1	3	.....	266
Senile Decay	118	57	54	37	40	26	15	16	11	19	14	9	7	423
XII.—SUICIDE.														
Poison	1	1	1	2	.....	.....	.....	.....	.....	1	1	.....	.....	7
Strangulation .....	.....	3	2	.....	1	2	1	.....	.....	.....	.....	.....	.....	9
Gas Poisoning .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Drowning .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Firearms	1	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....	4
XIII.—ACCIDENT.														
Fractures and Dislocations	40	17	16	4	2	7	4	1	3	1	3	1	6	105
Gunshot	2	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
Lightning .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Drowning	26	1	6	.....	1	3	.....	1	1	1	1	1	2	44
Electric Cars	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Bicycles .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Railway s.	6	1	12	1	1	2	.....	.....	1	4	1	.....	1	30
Burns and Scalds	15	1	9	2	1	1	.....	.....	2	1	.....	1	.....	33
Homicide	1	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	3
Accidental Poisoning .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
XIV.—ILL-DEFINED CAUSES.														
Dropsy	14	4	4	7	7	.....	1	.....	.....	.....	2	1	.....	40
Tumors	15	7	4	4	4	2	1	.....	2	.....	.....	1	3	43
Other ill-defined causes	4	5	4	6	.....	.....	1	.....	2	1	2	.....	.....	25
Total	1,122	676	1,242	459	359	248	157	134	160	187	103	169	161	7,177

TABLE No. 15.

Deaths from Tuberculosis in Toronto, 1893 to 1897 inclusive.

Occupations.	Number.	Totals by ages.		Ages.											
		Aggregate years.	Average years.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45-49.	50-59.	60-69.	70-79.	80 and over.	Not given
				191	256	271	214	182	97	87	121	66	41	10	15
Agents.....	14	648	46			1	3	4	1	2	2		1		
Artists.....	5	168	33			1	1	1	1	1					
Blacksmiths.....	6	201	33	1		1	1	1		1	1				
Brewers.....	2	72	35			1				1					
Bricklayers.....	2	55	26		1		1								
Barbers.....	7	203	29		2	2	2	1							
Butchers.....	11	347	31		3	1	2	1	3						
Bookkeepers, clerks, etc.....	80	2326	28	12	21	24	13	6		1	2	1			
Bakers and confectioners.....	3	93	31	1		1				1					
Carpenters.....	17	780	46			2	1	3	2	3	2	2	2		
Cabinetmakers.....	3	129	43			1				2					
Coopers.....	3	121	40					1	1	1					
Convicts.....	2	46	23		2										
Chemists and druggists.....	3	142	47					1		1					
Clergymen.....	3	125	41				1	1			1				
Contractors.....	3	125	41					2		1					
Carriagemakers.....	2	109	54				1						1		
Dairymen.....	3	127	42				1		1	1					
Dentists.....	1	21	21		1										
Engineers.....	12	480	40		1			2	3	2	3				1
Editors.....	2	70	35					2							
Farmers.....	29	1222	42		3	4	3	2	3	4	4	2	3	1	
Farmers' wives.....	3	184	61								1	2			
Factory employees, male.....	13	443	34	1	2	2	4	2		1	1				
do female.....	5	132	26		2	1	2								
Gentlemen.....	14	741	53		1	2		1	1		4	2	2	1	
Gardeners.....	4	129	32		1	1	1	1							
House wives.....	221	7768	35	6	22	51	36	33	20	15	19	11	1	1	6
Laborers.....	105	4457	42	5	13	24	10	9	5	7	14	5	13		
Laundry workers.....	3	86	28		1		1	1							
Lawyers.....	4	133	33		1	1		1	1						
Milliners, seamstresses, etc.....	21	727	34	3	3	5	3	2	2		1	2			
Machinists.....	23	775	33		1	8	11	1	1		1				
Mechanics.....	41	1136	27	2	12	8	12	2	2		1	1	1		
Moulders.....	7	202	28	2	2	1	1	1							
Millers.....	2	88	44						1	1					
Millwrights.....	3	155	51							1	1	1			
Musicians and piano tuners.....	5	182	36			1	1	2	1						
Managers and manufacturers.....	6	236	39			1	1	3	1						
Merchants.....	23	889	38	1	2	4	2	6	3	2	2	1			
Nuns.....	14	492	35			5	3	2	2	1	1				
Other indoor occupations.....	15	587	39		3	2	2	2	2		4				
Other outdoor do.....	9	352	39	2		1	1	2			1	1	1		
Plumbers and steamfitters.....	9	236	26	2	3	1			1	2					
Painters.....	14	535	38	3	2	1	3		2	1	2				
Printers and lithographers.....	29	866	29	4	7	4	4	6	1	1		1	1		
Pedlars.....	1	33	33				1								
Plasterers.....	3	103	34			1	1			1					
Physicians.....	6	183	30		1	2	2		1						
Public officials.....	8	264	33	1		1	3	1	1		1				

TABLE No 15.—*Concluded.*
Deaths from Tuberculosis in Toronto.—*Concluded.*

Occupations.	Number.	Totals by ages.		Ages.											
		Aggregate years.	Average years.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45-49.	50-59.	60-64.	70-79.	80 and over.	Not given.
				191	256	271	214	182	97	87	121	66	41	10	15
Railroad employees.....	11	411	37	2	2	2	2				1	1	1		
Stonecutters.....	13	575	44	1			1	2	5	1	2	1			
Statesmen.....	1	45	45							1					
Shoemakers.....	10	526	52			1		2	2		1	3	1		
Sailors.....	6	231	38			2		1			3				
Saddlers and harnessmakers.....	5	230	46				1	1	1		2				
Servants.....	36	1046	29	5	10	5	8	3	1	2	1	1			
Stenographers.....	6	144	24		5				1						
Students.....	18	356	19	12	6										
School children.....	9	129	15	9											
Soldiers.....	3	147	49				1				1	1			
Teamsters, drivers, grooms, etc.....	18	593	32	1	5	3	4	3	1			1			
Tavernkeepers.....	7	230	32			2	4				1				
Teachers, male.....	4	93	23	1	1	1	1								
do female.....	14	461	32	1	3	4	2	3				1			
Travellers, commercial.....	8	339	42			1	1	3	2	1					
Telegraph operators.....	3	111	37		1	1	1								
Telephone do.....	6	146	24	1	3	2									
Tailors.....	15	668	44	1	1	3		3	1	1	1	2	2		
Watchmakers and engravers.....	5	206	41		1	2				1	1				
Widows.....	28	1480	52			3	3	3	1	3	4	7	3	1	
Weavers.....	2	40	20		1	1									
Totals.....	1053	37972	36	77	153	200	165	133	77	64	88	50	33	4	7
No occupation given, males.....	105	3584	34	30	20	13	8	8	6	5	7	2	1	1	4
do do females.....	395	12417	31	84	83	58	41	41	14	18	26	14	7	5	4
Totals.....	1553	53973	34	191	256	271	214	182	97	87	121	66	41	10	15
Children under 15 years of age.....	737			404	76	25	17		7		51			57	
Total, including children.....	2290														

Summary of Deaths by Classes of Occupations.

Males—	Per cent.	Females—	Per cent.
Labourers.....	14.7	Housewives.....	22.1
Artisans (33 trades).....	28.8	Servants.....	3.6
Business men (clerks and travellers).....	12.4	Widows.....	2.8
Farmers.....	2.9	Milliners and seamstresses.....	2.1
Students and school children.....	2.7	Stenographers, telegraph and telephone employees.....	1.5
Professional men (inc. male teachers).....	2.6	Female teachers.....	1.4
Gentlemen.....	1.4	Nuns.....	1.4
Public officials.....	0.8	Farmers' wives.....	0.3
Sailors.....	0.6		
Soldiers.....	0.3		
Convicts.....	0.2		
Pedlars.....	0.1		

These percentages are calculated for the 1,053 persons whose occupations are named. It may be assumed that the same proportions would be maintained in the 500 additional deaths over 15 years.

Thus 83 per cent. of all occupations given belong to those earning a daily wage.

TABLE No. 16.

Deaths from Tuberculosis in Ottawa, 1893 to 1897 inclusive.

Occupations.	Number of deaths.	Aggregate.	Average.	15 to 19.	20 to 24.	25 to 29.	30 to 39.	40 to 49.	50 to 59.	60 to 69.	70 to 79.	80 and over.
				By ages.	57	66	73	115	68	41	18	5	2
Totals	445	By ages		57	66	73	115	68	41	18	5	2
Agents.....	1	35 years	35 years				1					
Artists.....	1	22 "	22 "		1							
Bricklayers.....	1	35 "	35 "				1					
Blacksmiths.....	3	112 "	37 "		1		1		1			
Barbers.....	2	90 "	45 "				1		1			
Bookkeepers and clerks.....	24	770 "	32 "	3	2	10	3	3	3			
Bakers.....	1	27 "	27 "									
Carpenters.....	9	303 "	33 "	2		2	3		2			
Cabinetmakers.....	1	34 "	34 "				1					
Chemists and druggists.....	1	33 "	33 "				1					
Clergymen.....	2	126 "	63 "					1				1
Contractors.....	2	102 "	51 "					1	1			
Electricians.....	4	96 "	24 "		1	3						
Farmers.....	3	135 "	45 "					3				
Gentlemen.....	3	154 "	51 "					2				
Housewives.....	60	2,161 "	36 "	1	6	12	25	10	4	1	1	
Laborers.....	45	1,818 "	40 "	2	6	8	9	6	8	6		
Milliners, seamstresses.....	4	114 "	28 "		2		2					
Mechanics.....	3	111 "	37 "			1		2				
Millers.....	1	56 "	56 "						1			
Merchants.....	6	214 "	35 "			2	2	2				
Lumbermen.....	9	309 "	34 "		2		5	2				
Nuns.....	15	494 "	32 "		3	4	5	2	1			
Glass blowers.....	1	54 "	54 "						1			
Plumbers.....	3	66 "	22 "	1	1	1						
Painters.....	3	145 "	48 "					2	1			
Printers.....	14	343 "	24 "	1	7	2	2	1				1
Pedlers.....	1	55 "	55 "						1			
Plasterers.....	1	37 "	37 "				1					
Physicians.....	1	47 "	47 "					1				
Public officials.....	17	666 "	39 "		1	2	7	6			1	
R. R. employees.....	3	73 "	24 "		2	1						
Factory hands (male).....	7	189 "	27 "	1	2	2	2					
Stonecutters.....	3	158 "	52 "				1		1	1		
Shoemakers.....	4	163 "	40 "				3		1			
Sailors.....	1	66 "	66 "							1		
Saddlers.....	1	27 "	27 "			1						
Servants.....	20	619 "	31 "	5	4	4	1	3	2		1	
Students.....	4	72 "	18 "	4								
Travellers (commercial).....	2	120 "	60 "						1	1		
Teamsters.....	7	372 "	53 "		1		1	1		3	1	
Tavernkeepers.....	5	209 "	41 "			1	1	2	1			
Teachers (female).....	2	40 "	20 "	1	1							
Telegraph operators.....	1	19 "	19 "	1								
Tailors.....	3	91 "	30 "			2	1					
Watchmakers and jewellers.....	5	165 "	33 "		2	1	1		1			
Totals	310	11,147 years	35 years	22	45	60	81	50	32	14	4	2
Occupation not given.....	135	4,238 "	38 "	35	21	13	34	18	9	4	1	
Totals	445	15,385 years	34 years	57	66	73	115	68	41	18	5	2
Children under 14 years..	31			46	8	6	3	1	14	13		
Grand total	536											

APPENDIX.

BIRTHS.

BIRTHS BY MONTHS, 1897.—COUNTIES.

Counties.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	No. of pair.	Triples.	Illegitimate.	Still born.
Algoua:																	
Males.....	39	30	40	43	40	28	33	53	47	40	35	36	464	7		5	2
Females.....	36	34	34	40	48	33	35	37	43	34	38	30	442	11		5	4
Total.....	75	64	74	83	88	61	68	90	90	74	73	66	906	9 pair		10	6
Brant:																	
Males.....	38	31	36	44	31	30	33	18	35	41	28	28	393	1		2	2
Females.....	30	33	38	30	26	38	38	24	30	29	22	40	378	3			2
Total.....	68	64	74	74	57	68	71	42	65	70	50	68	771	2 pair		2	4
Bruce:																	
Males.....	60	63	71	70	54	48	55	65	80	56	52	73	747	20		5	11
Females.....	51	68	49	72	70	44	69	56	65	53	61	62	720	18		5	5
Total.....	111	131	120	142	124	92	124	121	145	109	113	135	1,467	19 pair		10	16
Carleton:																	
Males.....	97	102	97	80	85	93	99	79	92	81	89	82	1,076	30		76	7
Females.....	76	88	110	90	80	87	89	93	86	72	71	70	1,012	16	3	94	13
Total.....	173	190	207	170	165	180	188	172	178	153	160	152	2,088	23 pair	3	170	20
Dufferin:																	
Males.....	32	18	20	18	24	21	15	19	17	25	21	7	237	5		5	3
Females.....	25	12	18	21	22	20	12	23	18	12	20	10	213	1		3	4
Total.....	57	30	38	39	46	41	27	42	35	37	41	17	450	3 pair		8	7
Elgin:																	
Males.....	36	31	42	27	38	29	33	43	35	41	29	21	405	1		1	6
Females.....	40	35	38	29	29	38	38	33	40	29	29	18	396	3			1
Total.....	76	66	80	56	67	67	71	76	75	70	58	39	801	2 pair		1	7
Essex:																	
Males.....	69	76	85	58	61	60	73	72	74	32	61	43	784	11		6	6
Females.....	90	76	72	49	73	56	69	69	69	54	62	42	781	17		8	13
Total.....	149	152	157	107	134	116	142	141	143	116	123	85	1,565	14 pair		14	19

Frontenac :	39	33	39	44	36	39	34	456	13	3	23	1
Males.....	41	37	40	51	39	30	31	461	11	.....	14	4
Females.....	80	70	79	85	87	69	65	917	12 pair	3	37	5
Total												
Grey :	69	62	56	71	67	60	69	734	16	.....	6	7
Males.....	74	56	81	62	81	50	51	747	14	.....	7	6
Females.....	143	118	137	133	148	110	120	1,481	15 pair	.....	13	13
Total												
Haldimand :	22	17	15	22	17	15	15	203	9	.....	.....	.....
Males.....	21	24	17	22	18	17	13	212	9	.....	.....	.....
Females.....	43	41	32	44	35	32	28	415	9 pair	.....	.....	.....
Total												
Halton :	14	11	20	21	23	15	18	222	2	.....	1	2
Males.....	16	10	23	16	15	18	11	198	.....	.....	2	.....
Females.....	30	21	43	37	38	33	29	420	1 pair	.....	3	2
Total												
Haliburton :	12	7	13	9	13	10	9	128	.....	.....	1	.....
Males.....	12	11	10	7	6	7	6	102	.....	.....	1	.....
Females.....	24	18	23	16	19	18	15	230	.....	.....	2	1
Total												
Hastings :	46	56	51	54	58	45	49	637	8	.....	7	4
Males.....	52	50	56	48	56	35	43	589	8	.....	3	3
Females.....	98	106	107	102	114	91	92	1,226	8 pair	.....	10	7
Total												
Huron :	55	37	56	55	55	54	50	638	12	.....	5	2
Males.....	40	52	55	52	63	55	52	637	16	.....	1	1
Females.....	95	89	111	107	118	109	102	1,275	14 pair	.....	6	3
Total												
Kent :	49	50	64	61	81	66	57	690	12	.....	6	3
Males.....	72	63	65	55	70	60	58	712	14	.....	3	5
Females.....	121	113	129	116	161	126	108	1,402	13 pair	.....	9	17
Total												

BIRTHS BY MONTHS, 1897.—COUNTIES.—Continued.

Counties.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	No. of pair of twins.	Triplets.	Illegitimate.	Still born.
Lambton:																	
Males.....	58	48	58	50	44	53	44	90	52	55	42	57	651	16		1	4
Females.....	47	53	56	61	54	35	42	52	51	41	45	43	580	20		4	6
Total.....	105	101	114	111	98	88	86	142	103	96	87	100	1,231	18 pair		5	10
Lanark:																	
Males.....	31	28	37	35	37	32	43	36	34	37	28	17	395	8		4	11
Females.....	36	25	33	38	17	35	38	38	23	30	22	22	357	16		3	5
Total.....	67	53	70	73	54	67	81	74	57	67	50	39	752	12 pair		7	16
Leeds and Grenville.																	
Males.....	44	45	62	56	54	45	57	57	52	57	52	43	624	21		3	3
Females.....	40	46	52	52	36	43	28	51	40	40	32	38	498	13		3	2
Total.....	84	91	114	108	90	88	85	108	92	97	84	81	1,122	17 pair		6	5
Lennox and Addington:																	
Males.....	20	14	23	22	21	15	18	15	18	18	19	17	220	7		2	1
Females.....	20	23	20	19	22	12	23	23	18	18	15	20	233	1			2
Total.....	40	37	43	41	43	27	41	38	36	36	34	37	453	4 pair		2	3
Lincoln:																	
Males.....	26	18	29	21	29	23	28	25	23	29	32	18	301	5		8	8
Females.....	31	30	38	26	23	24	12	35	24	29	22	21	315	7		4	5
Total.....	57	48	67	47	52	47	40	60	47	58	54	39	616	6 pair		12	13
Middlesex:																	
Males.....	69	74	78	58	70	66	73	58	72	66	61	60	805	18		7	11
Females.....	54	68	70	70	64	60	69	83	55	63	57	47	760	18		5	8
Total.....	123	142	148	128	134	126	142	141	127	129	118	107	1,565	18 pair		12	19
Muskoka:																	
Males.....	26	28	32	29	28	30	28	20	21	28	11	19	300	2		4	4
Females.....	27	27	33	33	28	31	26	22	16	15	23	19	300			1	3
Total.....	53	55	65	62	56	61	54	42	37	43	34	38	600	1 pair		5	7

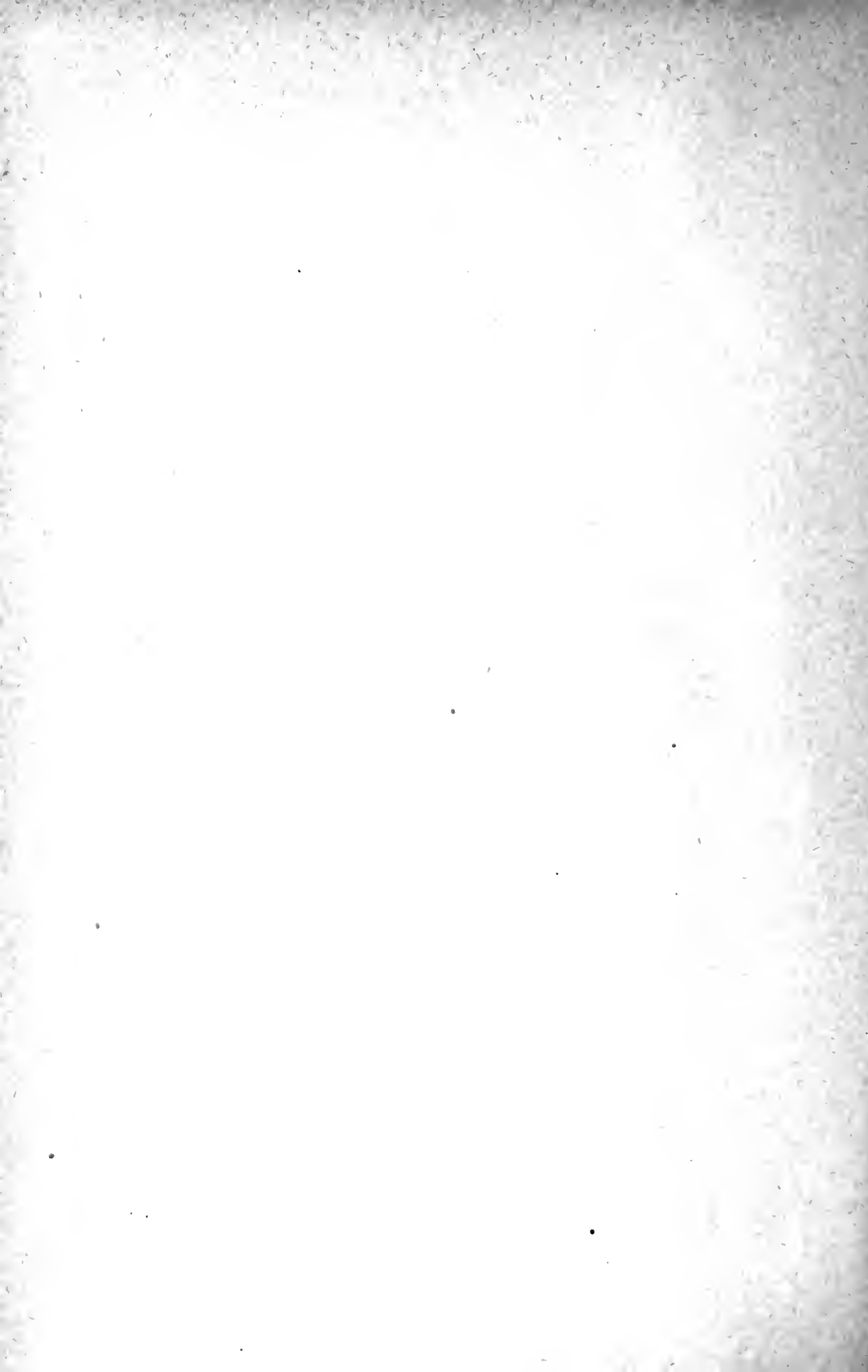
Nipissing:	72	34	72	48	40	43	41	98	39	31	19	26	503	1	.....	2	3
Males	57	27	38	36	39	29	43	36	43	30	35	50	463	1	.....	1	2
Females	129	61	110	84	79	72	84	74	82	61	54	76	966	1 pair	.....	3	5
Total																	
Norfolk:	28	18	30	23	34	21	34	29	29	30	24	28	328	1	.....	2	.....
Males	29	36	25	27	19	29	23	38	29	29	24	22	330	1	.....	2	.....
Females	57	54	55	50	53	50	57	67	58	59	48	50	658	1 pair	.....	3	4
Total																	
Northumberland and Durham:	67	38	66	57	59	37	61	44	46	66	51	68	660	11	.....	2	9
Males	45	44	47	64	47	45	46	62	63	50	51	40	604	13	.....	6	10
Females	112	82	113	121	106	82	107	106	109	116	102	108	1,264	12 pair	.....	8	19
Total																	
Ontario:	39	40	53	30	35	36	41	48	48	39	36	39	474	12	.....	5	5
Males	36	35	40	27	46	32	43	44	35	32	30	29	429	10	.....	5	6
Females	75	75	93	57	81	58	84	92	83	71	66	68	903	11 pair	.....	10	11
Total																	
Oxford:	35	38	56	39	49	59	47	50	45	46	33	51	548	8	.....	1	7
Males	39	41	51	33	45	28	43	51	50	43	25	40	489	4	.....	2	11
Females	74	79	107	72	94	87	90	101	95	89	58	91	1,087	6 pair	.....	7	18
Total																	
Parry Sound:	39	30	48	37	34	38	28	29	20	22	21	21	367	5	.....	1	10
Males	28	38	26	32	36	34	30	22	25	40	25	23	364	11	.....	3	2
Females	67	68	74	69	70	72	58	51	45	62	46	49	731	8 pair	.....	4	12
Total																	
Peel:	16	12	23	19	17	17	15	18	18	16	13	15	199	2	.....	.....	1
Males	15	10	20	28	19	16	11	12	18	16	16	14	195	.....	.....	.....	.....
Females	31	22	43	47	36	33	26	30	36	32	29	29	394	1 pair	.....	.....	.....
Total																	
Perth:	41	51	48	50	39	42	43	64	33	36	46	45	538	7	.....	5	4
Males	46	48	41	42	40	36	32	40	32	36	42	37	472	3	.....	4	1
Females	87	99	89	92	79	78	75	104	65	72	88	82	1,010	5 pair	.....	9	5
Total																	

BIRTHS BY MONTHS, 1897 — COUNTIES. — Concluded.

Counties.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	No. of pairs of twins.	Triplets.	Illegitimate.	Still born.
Peterborough:																	
Males	49	35	46	50	24	29	40	54	48	34	38	31	478	7		8	9
Females	44	28	40	39	34	32	40	43	30	36	31	20	412	5		5	4
Total	93	58	86	89	58	61	80	97	78	70	69	51	890	6 pair		13	13
Prescott and Russell:																	
Males	74	79	68	69	65	60	59	73	62	63	50	61	783	11		2	4
Females	70	70	87	76	60	56	65	72	66	54	61	51	788	11		1	9
Total	144	149	155	145	125	116	124	145	128	117	111	112	1,571	11 pair		3	13
Prince Edward:																	
Males	18	16	12	10	19	13	12	20	17	13	15	12	177	6		1	3
Females	16	7	11	12	13	12	16	10	12	10	9	13	141			1	3
Total	34	23	23	22	32	25	28	30	29	23	24	25	318	3 pair		2	6
Rainy River:																	
Males	4	13	6	9	9	7	11	7	11	9	6	12	104	1		1	
Females	8	10	3	5	6	10	8	12	9	7	10	7	95	1			
Total	12	23	9	14	15	17	19	19	20	16	16	19	199	1 pair		1	
Renfrew:																	
Males	85	68	87	67	72	67	91	51	78	58	58	56	838	9		3	2
Females	62	62	53	62	63	59	62	48	69	53	46	49	688	13		7	1
Total	147	130	140	129	135	126	153	99	147	111	104	105	1,526	11 pair		10	3
Sincoe:																	
Males	65	61	78	68	71	69	91	73	90	91	52	59	868	29		7	11
Females	67	58	83	68	81	71	66	86	72	73	64	60	849	21		6	5
Total	132	119	161	136	152	140	157	159	162	164	116	119	1,717	25 pair		13	16
Stormont, Dundas and Glengarry:																	
Males	54	64	72	67	57	44	64	75	60	52	52	49	710	12	8	8	7
Females	37	63	85	68	59	52	56	55	70	57	52	45	700	18		3	5
Total	91	127	158	135	116	96	120	130	130	109	104	94	1,410	15 pair	3	6	12

BIRTHS BY MONTHS, 1897 — CITIES.

Cities.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	No. of pair of twins.	Triplets.	Illegitimate.	Still born.
Toronto:																	
Males	186	150	198	165	179	170	188	192	165	152	152	169	2,076	29		109	1
Females.....	189	146	157	195	174	156	173	137	159	116	146	164	2,002	23		119	2
Total	385	296	355	360	353	326	361	389	324	298	298	333	4,078	31 pair		228	3
Ottawa:																	
Males	58	67	43	47	53	65	66	45	57	44	46	37	638	18		68	1
Females.....	57	56	74	54	57	58	51	61	50	48	39	30	635	14	3	95	12
Total	115	123	127	101	110	123	117	106	107	92	85	67	1,273	16 pair	3	163	13
Hamilton:																	
Males	40	35	47	39	33	43	45	60	59	33	28	45	507	3		11	8
Females.....	32	32	38	34	49	43	31	49	37	25	53	37	462	1		8	14
Total	72	67	85	73	82	86	76	109	96	58	83	82	969	2 pair		19	22
London:																	
Males	26	27	28	21	24	28	17	21	24	23	26	29	294	7		3	3
Females.....	19	24	23	23	16	12	32	30	20	17	27	15	258	9		3	1
Total	45	51	51	44	40	40	49	51	44	40	53	44	552	8 pair		6	4
Kingston:																	
Males	15	16	20	15	13	11	22	13	17	16	9	6	173	7		17	...
Females.....	12	19	19	15	16	23	13	21	12	12	13	8	183	3		13	...
Total	27	35	39	30	29	34	35	34	29	28	22	14	356	5 pair		30	...
Brantford:																	
Males	18	17	21	24	16	15	16	8	18	21	13	11	198			3	6
Females.....	15	13	22	20	11	21	18	14	19	18	14	25	210			5	6
Total	33	30	43	44	27	36	34	22	37	39	27	36	408			8	12



MARRIAGES.

MARRIAGES BY MONTHS, 1897.

Counties.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	No date given.	Total number of couples married.
Algoma	18	15	16	15	10	13	18	18	28	24	27	23	1	226
Brant	12	16	30	17	10	30	13	15	23	19	21	26	.....	232
Bruce	22	33	44	34	16	30	15	22	34	29	33	67	.....	379
Carleton	34	37	51	52	44	82	63	60	80	61	65	28	3	660
Dufferin	6	13	17	6	2	23	5	3	10	10	7	26	.....	128
Elgin	29	28	17	16	19	28	19	20	34	21	17	56	.....	304
Essex	69	66	59	56	93	93	73	79	114	86	105	76	1	970
Frontenac	22	19	20	28	23	45	24	20	26	24	38	52	.....	343
Grey	32	32	53	24	22	45	37	19	29	24	29	59	.....	405
Haldimand	11	15	16	14	7	22	2	1	19	18	15	19	4	163
Halton	7	8	13	7	6	13	1	5	13	9	6	17	.....	105
Haliburton	1	1	3	1	2	7	4	.....	2	2	3	6	.....	32
Hastings	27	26	35	13	30	33	30	23	60	36	44	68	2	427
Huron	36	33	49	19	34	60	18	18	38	31	31	76	.....	443
Kent	21	28	32	32	34	37	27	21	37	47	60	58	.....	434
Lambton	41	23	33	31	25	42	7	28	57	30	37	67	.....	421
Lanark	24	14	13	22	11	31	12	16	15	23	19	21	.....	221
Leeds and Grenville	31	41	27	27	21	53	22	27	74	44	41	53	.....	461
Lennox and Addington	15	11	11	6	10	19	9	5	15	15	18	32	.....	166
Lincoln	16	11	12	11	16	25	12	13	23	24	18	21	.....	202

Middlesex.....	47	35	54	49	31	84	38	45	86	70	78	87	704
Muskoka	5	7	14	6	7	13	14	9	17	13	14	18	137
Nipissing	23	16	10	16	9	14	16	13	10	18	14	14	173
Norfolk	15	10	22	19	14	22	10	12	22	20	24	47	237
Northumberland and Durham	40	33	46	32	21	38	24	16	51	26	35	76	440
Ontario	21	17	28	13	12	24	12	7	19	24	19	39	235
Oxford	15	17	30	26	15	61	16	13	30	23	33	61	342
Parry Sound.....	12	7	9	9	13	14	11	14	13	10	22	19	136
Peel.....	15	18	13	6	5	12	3	3	12	12	18	20	143
Perth	25	25	31	20	20	29	8	9	27	29	35	49	307
Peterboro'.....	24	17	25	24	6	24	7	15	17	27	23	21	230
Prescott and Russell	24	17	11	19	22	34	31	33	31	31	31	9	293
Prince Edward	13	12	4	7	5	8	6	8	24	9	6	25	128
Rainy River.....	6	2	2	3	1	4	4	11	1	8	11	9	62
Renfrew	28	32	27	24	18	42	31	19	28	31	32	36	355
Simcoe	48	24	43	37	33	55	36	31	55	68	54	69	555
Stormont, Dundas and Glengarry.....	35	34	30	12	25	43	21	22	56	42	44	51	415
Thunder Bay	7	1	3	2	3	5	8	1	13	8	11	6	68
Victoria	19	19	26	8	8	17	12	9	37	23	14	33	225
Waterloo	27	32	26	24	18	37	22	16	28	48	32	34	344
Welland.....	26	14	11	14	20	32	21	24	34	29	28	25	278
Weellington	28	33	45	24	22	41	25	18	32	25	18	56	377
Wentworth	33	35	37	33	30	70	40	44	62	45	49	70	549
York	137	131	113	141	113	225	141	116	193	166	168	171	1,818
Totals	1,147	1,063	1,227	989	906	1,682	968	921	1,633	1,384	1,453	1,896	15,263

MARRIAGES BY DENOMINATIONS AND AGES, 1897.

Sex.	Religious denomination of bride and bridegroom.											How married.		Totals.	Counties.	Age.													
	Episcopalian.	Presbyterian.	Methodist.	Roman Catholics.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Quakers.	Mennonites.	Other denominations.	No denomination given.	License.			Banns.	Under 20 years.	20 to 24 years.	25 to 29 years.	30 to 34 years.	35 to 39 years.	40 to 44 years.	45 to 49 years.	50 to 54 years.	55 to 59 years.	60 to 64 years.	65 to 69 years.	70 years and over.	Ages not given.
Males ..	39	57	56	48	9	1	7	1	1	1	5	4	...	...	5	70	79	40	17	3	2	1	...	4	...	5	...	
Females ..	38	55	62	50	9	1	4	...	...	2	5	...	...	...	83	86	34	10	4	1	1	1	...	2	...	4	...	
Total.	77	112	118	98	18	2	11	...	...	7	9	195	31	452	88	156	113	50	21	4	3	2	...	6	...	9	...	
Males ..	39	54	76	9	39	7	...	1	...	4	3	...	...	...	4	68	75	41	16	17	4	3	1	1	2	...	2	...
Females ..	38	51	75	15	40	9	...	3	...	3	1	...	...	...	30	101	63	19	12	5	...	...	...	...	...	...	...	...
Total.	77	105	151	24	79	16	...	1	...	7	4	239	2	461	34	169	138	60	28	22	4	3	3	1	2	...	2	...	
Males ..	43	139	117	31	16	1	15	7	...	2	7	1	...	...	2	100	149	73	29	7	12	2	...	...	...	...	...	...
Females ..	42	145	116	29	17	...	10	6	...	1	9	4	...	...	52	179	91	35	14	2	6	...	...	...	...	...	...	...
Total.	85	284	233	60	33	1	25	13	...	3	16	5	345	34	758	54	279	240	108	43	9	18	2	...	...	...	...	...
Males ..	130	115	79	278	18	5	14	...	...	12	9	...	...	...	660	223	215	101	48	19	17	9	3	3	...	...	...	...
Females ..	122	108	90	290	16	7	11	...	...	9	7	...	...	...	660	291	156	53	18	7	10	...	2	1	...	...	...	...
Total.	252	223	169	568	34	12	25	...	...	21	16	507	153	1320	123	514	371	154	66	26	27	9	5	4	...	...	...	...
Males ..	19	49	45	1	4	1	...	...	...	8	1	...	...	...	128	33	50	23	8	5	2	2	...	...	...	...	...	...
Females ..	27	43	42	...	6	1	1	...	...	8	...	...	...	...	128	56	45	10	2	1	...	...	...	...	...	...	...	...
Total.	46	92	87	1	10	2	1	...	...	16	1	128	...	256	9	89	93	33	10	6	3	2	2	...	...	...	...	...
Males ..	26	66	121	4	48	2	1	7	...	17	12	...	...	...	304	92	97	54	21	12	8	1	1	5	1	...	...	...
Females ..	29	58	119	4	61	2	1	4	...	17	9	304	114	81	33	7	3	3	7	
Total.	55	124	240	8	109	4	2	11	...	34	21	301	3	608	65	206	180	87	28	15	11	8	1	5	1	

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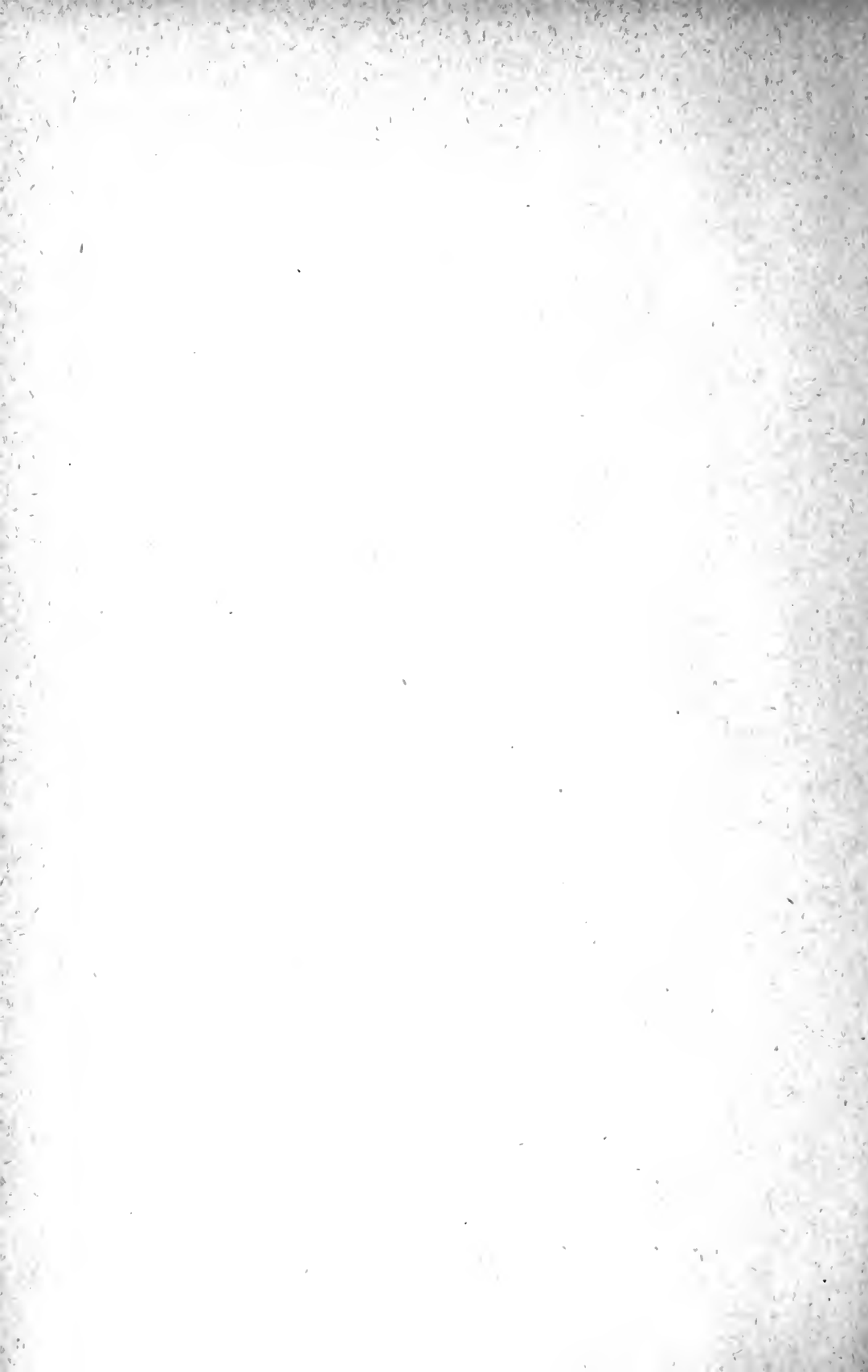
Males ..	150	189	250	230	74	21	69	1	2	...	30	4	970	Essex	{	31	404	295	112	54	27	20	11	4	5	3	2		
Females	147	117	247	238	79	10	74	29	9	970			198	429	186	73	33	15	11	6	2	2	3	12		
Total.	297	256	497	488	153	31	143	1	2	...	59	13	872	1940			229	833	481	185	87	42	31	17	6	7	6	14		
F. Males ..	67	56	146	47	10	7	...	...	1	...	7	2	.....	343	Frontenac	{	14	100	120	38	32	15	14	6	1	2	1	...	...
F. Females	69	53	156	43	8	5	...	...	2	...	6	1	.....	343			68	128	78	33	18	9	2	4	2	1	...	...
Total.	136	109	302	90	18	12	...	...	3	...	13	3	324	686			82	228	198	71	50	24	16	10	3	3	1	...	
Males ..	40	133	142	16	13	1	27	11	1	1	14	4	405	Grey	{	1	91	155	81	38	11	8	4	4	4	5	5	1	1
Females	49	136	130	18	14	3	28	11	1	1	12	2	.....	405			41	158	110	50	15	17	3	4	2	4	1	...	...
Total.	89	271	272	34	27	4	55	22	2	2	26	6	374	810			42	249	265	131	53	28	11	8	6	9	6	1	1	
Males ..	20	22	61	8	16	...	4	4	...	2	12	14	...	163	Haldimand ..	{	1	39	63	32	16	4	4	...	2	1	1	...	...
Females	21	21	62	8	16	...	4	4	...	2	14	11	...	163			28	65	40	14	10	4	2	...	...	...	...	...	...
Total.	41	43	123	16	32	...	8	8	...	4	26	25	157	326			29	104	103	46	26	8	6	...	2	1	1	...	...
Males ..	16	35	45	2	3	1	3	105	Halton	{	...	24	38	21	10	4	3	2	3
Females	14	35	45	3	6	1	...	...	...	1	...	...	...	105			...	44	25	10	6	2	...	1	1	...	...	...	...
Total.	30	70	90	5	9	2	...	...	...	4	...	...	104	210			16	68	63	31	16	6	3	3	4	...	...	...	...
Males ..	13	2	18	...	2	...	1	1	32	Haliburton ..	{	...	10	12	6	3	1
Females	13	2	14	2	...	...	...	...	...	...	...	...	...	32			...	11	5	1	...	...	...	...	...	...	...	...	...
Total.	26	4	27	2	2	...	1	2	...	...	...	...	32	64			14	21	17	7	3	...	2	...	...	...	...	...	...
Males ..	64	51	244	46	7	1	...	1	4	9	427	Hastings	{	11	152	135	48	36	16	10	3	6	5	4	1
Females	73	53	235	49	8	1	...	1	...	...	7	6	.....	427			83	194	85	28	13	12	3	3	3	3	...	...	...
Total.	137	104	479	95	15	2	...	2	...	...	11	9	394	854			94	346	220	76	49	28	13	6	9	8	4	1	...
Males ..	45	138	183	12	8	4	11	14	...	1	6	1	443	Huron	{	...	105	176	85	33	11	7	6	3	5	1	1
Females	47	131	177	14	7	5	13	16	...	1	6	6	.....	443			...	159	136	69	17	13	9	2	2	...	...	...	...
Total.	92	309	360	26	15	9	24	30	...	2	12	7	428	886			34	264	312	164	50	24	16	8	5	5	2	1	1	
Males ..	64	74	175	58	36	3	1	1	13	9	434	Kent	{	16	163	134	65	27	12	4	3	4	2	1	1	2	...
Females	49	79	173	60	44	2	...	2	...	...	12	13	.....	434			97	186	82	34	16	5	5	1	1	...	...	...	...
Total.	113	153	348	118	80	5	1	3	25	22	387	868			113	349	216	99	43	17	9	8	5	3	1	1	4	...

MARRIAGES BY DENOMINATIONS AND AGES, 1897.—Continued.

Sex.	Religious denomination of bride and bridegroom.											How married.		Countries.	Ages.														
	Episcopaltans.	Presbyterians.	Methodists.	Roman Catholics.	Baptists.	Congregationalists.	Unitarians.	Evangelical Association.	Quakers.	Mennonites.	Other denominations.	No denomination given.	License.		Banns.	Totals.	Under 20 years.	20 to 24 years.	25 to 29 years.	30 to 34 years.	35 to 39 years.	40 to 44 years.	45 to 49 years.	50 to 54 years.	55 to 59 years.	60 to 64 years.	65 to 69 years.	70 years and over.	Ages not given.
Males..	60	106	167	25	85	14	1	1	1	8	5	421	.....	.....	421	1	120	145	89	35	13	6	2	4	4	2	.....	.....
Females..	57	95	170	28	37	13	3	1	1	10	7	421	.....	.....	421	81	181	96	36	10	10	3	1	2	1	.....	.....
Total.	117	201	337	53	122	27	4	1	1	18	12	842	392	29	842	82	301	241	125	45	23	9	3	6	5	2	.....	.....
Males..	51	78	60	20	6	1	1	1	1	.....	3	221	.....	.....	221	.....	81	71	28	18	11	4	5	2	1	.....	.....
Females..	49	78	63	17	7	3	2	1	1	2	.....	221	.....	.....	221	43	94	50	15	12	2	2	3	.....	.....	.....	.....
Total.	100	156	123	37	13	4	3	1	1	2	3	442	202	19	442	43	175	121	43	30	13	6	8	2	1	.....	.....
Males..	126	76	183	39	24	.....	2	.....	.....	5	6	461	.....	.....	461	11	164	132	65	38	15	9	14	4	1	1	2	5
Females..	112	70	204	40	24	.....	2	.....	.....	6	5	461	.....	.....	461	60	190	116	44	17	9	8	10	1	1	.....	.....
Total.	238	146	387	79	48	.....	2	.....	.....	11	11	922	433	28	922	71	354	248	109	55	24	17	24	5	2	1	2	10
Males..	42	17	90	13	1	1	1	1	1	.....	.....	166	.....	.....	166	15	65	45	22	7	4	3	3	.....	.....	.....	.....
Females..	42	14	94	14	.....	.....	1	1	1	.....	.....	166	.....	.....	166	37	80	28	9	6	4	.....	1	.....	.....	.....	.....
Total.	84	31	184	27	1	1	2	2	2	.....	.....	332	152	14	332	52	145	73	31	13	8	3	4	.....	.....	.....	.....
Males..	43	31	78	14	12	1	2	7	.....	9	5	202	.....	.....	202	13	75	56	30	8	6	7	2	1	2	1	.....	.....
Females..	41	29	79	12	13	.....	3	11	.....	10	4	202	.....	.....	202	37	87	43	16	9	5	3	2	.....	.....	.....	.....
Total.	84	60	157	26	25	1	5	18	.....	19	9	404	196	6	404	50	163	99	46	17	11	10	4	1	2	1	.....	.....
Males..	146	145	277	56	53	7	1	.....	1	14	4	704	.....	.....	704	16	209	237	109	59	29	14	13	6	2	3	6	1
Females..	125	154	285	54	56	2	.....	1	.....	21	6	704	.....	.....	704	86	323	172	61	27	17	3	7	2	1	2	.....	3
Total.	271	299	562	110	109	9	1	1	1	35	10	1408	659	45	1408	102	532	409	170	86	46	17	20	8	3	5	6	4	

iiii

Males..	35	30	49	8	4	3	1	7	137	Muskoka	5	48	44	22	9	5	2	1	1	2	
Females	42	26	44	8	7	1	2	7	137	.....	41	54	22	7	8	2	1	1	1	1
Total.	77	56	93	16	11	4	3	14	274	.....	44	102	66	29	17	7	3	1	2	2
Males..	18	26	14	102	2	8	1	2	173	Nipissing	73	80	62	16	9	3	2	1	.....	.....
Females	14	15	24	110	1	9	.....	.....	173	.....	73	66	23	8	2	.....	1	.....	.....	.....
Total.	32	41	38	212	3	17	.....	2	346	.....	73	146	85	24	11	3	3	1	.....	.....
Males..	22	25	106	69	4	6	237	Norfolk	5	104	66	26	14	5	2	1	4	2	5
Females	23	23	101	1	76	3	.....	9	237	.....	66	101	37	13	7	3	.....	3	1	5
Total.	45	48	207	1	145	7	.....	15	474	.....	71	205	103	39	21	8	2	4	5	7
Males..	58	83	247	19	16	3	9	440	Northumberland and Durham	10	125	154	77	33	16	11	9	2	1	1
Females	60	81	248	18	14	3	.....	11	440	.....	57	190	117	39	16	14	8	.....	2	1
Total.	118	164	495	37	30	6	.....	20	880	.....	67	315	271	116	49	30	14	9	4	2
Males..	21	60	120	16	7	.....	1	9	235	Ontario	3	61	81	44	22	9	7	4	1	.....
Females	22	53	117	18	12	.....	2	6	235	.....	34	98	64	20	8	6	2	1	1	1
Total.	43	113	237	34	19	.....	3	14	470	.....	37	159	145	64	30	15	9	5	2	1
Males..	40	57	172	9	42	3	6	1	342	Oxford	12	133	89	49	27	7	10	5	3	4	
Females	38	55	177	8	41	6	5	4	342	.....	43	168	61	28	18	7	6	5	2	1
Total.	78	112	349	17	83	9	11	5	684	.....	55	301	150	77	45	14	16	10	5	5
Males..	35	39	54	9	4	1	2	5	156	Parry Sound	17	60	45	22	2	3	5	.....	1	1
Females	30	38	59	11	5	1	3	4	156	.....	45	79	19	6	2	.....	1	3	.....	1
Total.	65	77	113	20	9	2	5	9	312	.....	62	139	64	28	4	3	6	3	.....	2
Males..	20	51	55	10	5	2	.....	.....	143	Peel	7	33	42	35	23	5	2	2	.....	1
Females	16	44	62	11	10	.....	.....	.....	143	.....	7	63	37	22	10	4	.....	.....	.....	1
Total.	36	95	117	21	15	2	.....	.....	286	.....	7	96	79	57	33	9	2	2	.....	1
Males..	27	101	87	16	11	.....	4	5	307	Perth	1	70	127	63	18	11	6	3	4	2
Females	25	102	86	16	12	.....	4	5	307	.....	33	140	82	26	11	2	5	2	.....	1
Total.	52	203	173	32	23	.....	8	10	614	.....	34	210	209	89	29	13	11	5	6	2



DEATHS.

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	39	40	41			
Number of Column.																																												
IV.—Continued.																																												
3. Organic Heart Diseases	14	13		13	14	5	8	14							2	1	2	2	1	3	6	6	1																					
4. Angina Pectoris	1			1																																								
5. Arteries, Atheroma, Aneurism, etc																																												
6. Other Dis. of Circulatory System	11	15		12	13	1	2	12	12						1	2	1	1	2	4	8	6	2																					
Total	28	28		26	29	1	8	20	28						1	2	4	3	1	5	9	14	12	3																				
V. RESPIRATOR.																																												
1. Acute Bronchitis	1	3		4		4		4		1	1	2																																
2. Chronic Bronchitis	7	2		4	5	2		7																																				
3. Broncho-pneumonia	32	14		34	12	10	10	26		5	1	1	1	1	1	2	1	3	4	3	5	7	3	3																				
4. Pneumonia	1			1				1																																				
5. Pleurisy	2	1		3				2																																				
6. Congestion of the Lungs																																												
7. Asthma and Emphysema																																												
8. Other Dis. of the Resp'y System																																												
Total	42	21		46	17	14	14	35		6	1	3		1	2	1	1	3	4	3	6	8	7	6																				
VI. DIGESTIVE SYSTEM.																																												
1. Ulcer of the Stomach	3	2		4	1	2		2		1																																		
2. Other Dis. of Stom. (cancer excp'd)	4	10		14		14				10	4			1																														
3. Infant. Diarr. & Cholera Infantum	2	1		3		3																																						
4. Diarr. & Enteritis (not infantile)																																												
5. Dysentery	1	3		2		1		1																																				
6. Hernial and Intestinal obstructions	2	1		2		1		2																																				
7. Other Diseases of the Intestines	4	2		3	3	2		4																																				
8. Diseases of the Liver	1	1		5		4		1		1																																		
9. Peritonitis (not puerperal)	1	1		1		1		1																																				
10. Iliac abscess and appendicitis																																												
Total	21	21		34	8	25	5	12		11	4	1		2	1	2	4	3	2																									
VII. GENITO-URINARY SYST.																																												
1. Acute Nephritis		2		1		1		1																																				
2. Bright's Disease	3	2		2	1	1		4																																				
3. Other Dis. of Kidneys & Adnexa	1	1		1		1		1																																				
4. Vesical Calculi				1		1																																						
5. Diseases of the Bladder		1		1		1		2																																				
6. Dis. of the male Genital Organs																																												
7. Metritis																																												
8. Other Diseases of the Uterus																																												
9. Ovarian Cysts & Ovarian Tumors																																												
10. Other Dis. of fem. Genital Organs																																												
Total	5	6		5	5	1	2	7						1	1	2																												
VIII. PUERPERAL DISEASES.																																												
1. Puerperal Septicæmia																																												

Xxviii.

ESSEX.—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	39	40	41	
IX. THE SKIN.																																										
1. Erysipelas																																										
2. Skin and Adnexa (Cancer except'd)																																										
X. LOCOMOTOR SYSTM. 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	1	1	1	1	1	1	1	1	1	1	
XI. MALFORMATIONS, ETC.																																										
1. Still Births	12	15	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
2. Congen. Debil. and Malformations	49	37	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
3. Other Diseases of Infancy	7	12	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
3. Senile Decay	28	30	31	27	20	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	
XII. SUICIDE. Total	87	94	153	28	123	20	38	120	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		
XIII. ACCIDENTS.																																										
1. Poison	2	2	1	1	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	2		
2. Strangulation	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Gas Poisoning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Drowning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Firearms	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	3	3		
XIV. ILL-DEFINED CAUSES.																																										
1. Fracture and Dislocations	7	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
2. Gunshot	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			
3. Lightning	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	2	2		
4. Drowning	6	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
5. Electric Cars	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	2	2		
6. Bicycles	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	2	2		
7. Railways	1	2	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			
8. Burns and Scalds	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	2			
9. Homicide	1	2	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			
10. Accidental Poisoning	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	2			
XIV. ILL-DEFINED CAUSES. Total	20	3	16	6	1	11	2	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10			
1. Dropsy	1	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4			
2. Tumors	1	5	4	2	4	2	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			
3. Other Ill-Defined Causes	2	4	5	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4			
Total	4	12	13	3	7	4	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				
Total from all causes	370	384	2	602	148	6	391	151	214	207	33	33	26	13	28	15	17	23	27	33	27	17	17	16	27	68	73	56	3	65	59	62	78	61	62	57	65	68	60	55		

GREY.—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	39	40	41		
IX. THE SKIN.																																											
1. Erysipelas	1	1	1	2	2	2	2	2	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		
2. Skin and Adnexa (Cancer except d)	1	1	1	2	2	2	2	2	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	
X. LOCOMOTOR SYSTEM. Total																																											
1. Pott's Disease	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Diseases of Bones and Joints	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Amputation (for unspecified Dis.)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. MALFORMATIONS, ETC.																																											
1. Still Births	18	7	25	45	25	45	25	45	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
2. Congen. Debil. & Malformations	25	20	45	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
3. Other Diseases of Infancy	62	56	108	2	1	43	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73		
4. Senile Decay	110	87	87	108	2	81	43	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73		
XII. SUICIDE. Total																																											
1. Poison	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		
2. Strangulation	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Gas Poisoning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Drowning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Firearms	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
XIII. ACCIDENTS. Total																																											
1. Fractures and Dislocations	8	3	7	4	1	2	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		
2. Gunshot	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	2	2	2	2	2	2	2	2	2	2		
3. Lightning	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
4. Drowning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Electric Cars	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Bicycles	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Railways	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Burns and Scalds	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Homicide	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
10. Accidental Poisoning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Total																																											
16	6	17	5	6	3	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13		
XIV. ILL-DEFINED CAUSES.																																											
1. Dropsy	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9			
2. Tumors	4	8	10	2	6	4	2	6	4	2	6	4	2	6	4	2	6	4	2	6	4	2	6	4	2	6	4	2	6	4	2	6	4	2	6	4	2	6	4	2			
3. Other Ill-Defined Causes	3	3	8	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			
Total																																											
12	17	18	11	6	13	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10			
Total from all causes																																											
328	328	419	291	9	271	185	263	263	263	133	33	15	12	4	14	13	20	34	36	21	29	16	22	40	75	105	93	4	70	60	87	71	55	53	48	54	62	57	47	55			

HALBURTON. — 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	39	40	41	
IX. THE SKIN.																																										
1. Erysipelas.....																																										
2. Skin and Adnexa (cancer excepted)																																										
X. LOCOMOTOR SYSTEM. Total																																										
1. Pot's Disease.....																																										
2. Diseases of Bones and Joints.....																																										
3. Amputation (for unspecified Dis.)																																										
XI. MALFORMATIONS, ETC.																																										
1. Still-Births.....																																										
2. Congen. Debil. & Malformations.																																										
3. Other Diseases of Infancy.....																																										
4. Senile Decay.....																																										
XII. SUICIDE. Total																																										
1. Poison.....																																										
2. Strangulation.....																																										
3. Gas Poisoning.....																																										
4. Drowning.....																																										
5. Firearms.....																																										
XIII. ACCIDENTS. Total																																										
1. Fractures and Dislocations.....																																										
2. Gunshot.....																																										
3. Lightning.....																																										
4. Drowning.....																																										
5. Electric Cars.....																																										
6. Bicycles.....																																										
7. Railways.....																																										
8. Burns and Scalds.....																																										
9. Homicide.....																																										
10. Accidental Poisoning.....																																										
XIV. ILL-DEFINED CAUSES. Total																																										
1. Dropsy.....																																										
2. Tumors.....																																										
3. Other Ill-Defined Causes.....																																										
Total from all causes.....																																										
	50	26	2	60	15	1	4	30	26	1	2	3	3	5	1	2	3	3	2	2	2	4	4	6	8	3	6	7	9	7	4	4	4	6	6	8	6	5	76			

CAUSES OF DEATHS BY COUNTIES IN 1897.—HALTON.—POPULATION, 23,357. (Including Municipalities of all classes.)

General Diseases.	Sex.		Nat'vty	Soc. con		Ages.										Months.												Totals.																			
	Male.	Female.		Canada	Foreign	Not sta.	Single	Married	Nota	Under 5.			Ages.							Months.																											
										0-1	1-2	2-3	3-4	3-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-59	60-69	70-79	80 & ov.	Janu.		Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.								
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	39	40	41						
I. COMMUNICABLE DISEASES																																															
1. Typhoid Fever.....	2	1	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	3				
2. Smallpox.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Measles.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Scarlet Fever.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. 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	1	1	1	1	1	1		
6. 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	1	1	1	1	1	1		
7. Influenza.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Other Epidemic Diseases.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Total.....	4	7	11	8	3	7	4	4	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		
II. OTHER GENERAL DISS.																																															
1. Pyemia and Septicemia.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Malarial Fever.....	5	11	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	1	1	1	1	1	1	
3. Tuberculosis and Scrofula.....	4	7	11	5	6	5	6	5	6	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	
4. Syphilis.....	2	2	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	2	2	2	2	2	2
5. Cancer.....	3	2	5	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	1	1	1	1	1	
6. Rheumatism and Gout.....	3	2	5	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	1	1	1	1	1	
7. Diabetes.....	3	2	5	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	1	1	1	1	1	
8. Other General Diseases.....	17	23	31	9	12	12	16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Total.....	17	23	31	9	12	12	16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Local Diseases.																																															
III. NERVOUS SYSTEM.																																															
1. Encephalitis.....	3	1	4	2	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	1	
2. Simple Meningitis.....	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	1	1	1	1	1	
3. Epidic Cerebro-spinal Meningitis.....	2	2	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	2	2	2	2	2	2
4. Congestion and Hemor'ge of Brain.....	2	2	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	2	2	2	2	2	2
5. Softening of the Brain.....	6	7	13	5	8	5	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	1	1	1
6. Paralysis without specified cause.....	3	4	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	7	7	7	7	7	7	7	7	7	7	7	7
7. Insanity.....	17	16	20	13	12	7	14	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	1	
8. Epilepsy.....	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	1	1	1	1	1	
9. Convulsions (not puerperal).....	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	1	1	1	1	1	
10. Other Nervous Diseases.....	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	1	1	1	1	1	
Total.....	17	16	20	13	12	7	14	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		
IV. CIRCULATORY SYSTEM.																																															
1. Pericarditis.....	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	1	1	1	1	1	
2. Endocarditi.....	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	1	1	1	1	1	

HASTINGS—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	39	40	41	
IX. THE SKIN.																																										
1. Erysipelas																																										
2. Skin and Adnexa (cancer except'd)	1			1																																						
X. Locomotor System. Total	1	1		1																																						
1. Pott's Disease																																										
2. Diseases of Bones and Joints																																										
3. Amputation (for unspecified Dis.)																																										
Total																																										
XI. MALFORMATIONS.																																										
1. Still Births	12	4	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	
2. Congen. Debil. & Malformations	27	20	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	
3. Other Diseases of Infancy	7	3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10		
4. Semile Decay	38	49	28	59	1	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43		
Total	84	76	101	59	74	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43		
XII. SUICIDE. Total																																										
1. Poison	1																																									
2. Strangulation	1																																									
3. Gas Poisoning																																										
4. Drowning																																										
5. Firearms																																										
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	1	1	1	1	1	1	1	1			
XIII. ACCIDENTS. Total																																										
1. Fractures and Dislocations	8	1	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	3		
2. Gunshot																																										
3. Lightning																																										
4. Drowning	4	3	6	1	4	2	1	4	2	1	4	2	1	4	2	1	4	2	1	4	2	1	4	2	1	4	2	1	4	2	1	4	2	1	4	2	1	4	2	1		
5. Electric Cars																																										
6. Bicycles																																										
7. Railways	5	4	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1		
8. Burns and Scalds	6	4	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1		
9. Homicide																																										
10. Accidental Poisoning	1																																									
Total	17	9	20	6	12	2	12	2	12	2	12	2	12	2	12	2	12	2	12	2	12	2	12	2	12	2	12	2	12	2	12	2	12	2	12	2	12	2	12			
XIV. ILL-DEFINED CAUSES. Total																																										
1. Dropsy	2	7	5	4	2	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3			
2. Tumors	5	2	6	1	2	1	4	1	2	1	4	1	2	1	4	1	2	1	4	1	2	1	4	1	2	1	4	1	2	1	4	1	2	1	4	1	2	1	4			
3. Other Ill-Defined Causes	2	5	6	1	3	3	1	3	3	1	3	3	1	3	3	1	3	3	1	3	3	1	3	3	1	3	3	1	3	3	1	3	3	1	3	3	1	3	3			
Total	9	14	17	6	7	8	8	7	8	8	7	8	8	7	8	8	7	8	8	7	8	8	7	8	8	7	8	8	7	8	8	7	8	8	7	8	8	7				
Total from all causes	377	340	543	167	7	311	184	222	142	32	8	15	9	19	28	27	23	35	12	31	18	22	47	64	97	85	3	59	64	78	80	62	47	49	68	59	58	50	43	717		

3.	Organic Heart Diseases.....	28	19	20	26	1	9	15	29	1	2	1	1	6	1	4	10	13	9	6	4	2	5	4	4	3	4	1	4	6	4	47			
4.	Angina Pectoris.....	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			
5.	Arteries, Atheroma, Aneurism, etc	16	18	16	18	16	18	16	18	16	18	16	18	16	18	16	18	16	18	16	18	16	18	16	18	16	18	16	18	16	18	34			
6.	Other Dis. of Circulatory System.	47	39	38	47	1	9	29	48	2	1	2	2	1	7	2	8	17	26	16	10	9	6	7	8	7	7	2	7	8	86				
Total		4	4	8	8	8	8	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8				
V. RESPIRATION.		6	3	6	3	6	3	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.	Acute Bronchitis.....	6	3	6	3	6	3	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
2.	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			
3.	Broncho-pneumonia.....	22	23	31	14	13	14	18	1	3	1	2	3	2	3	3	3	6	9	3	1	6	6	4	2	1	3	7	9	45	1				
5.	Pleurisy.....	1	1	1	1	1	1	1	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.	Congestion of the Lungs.....	4	4	6	2	4	2	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
7.	Asthma and Emphysema.....	1	3	2	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			
8.	Other Dis. of the Resp'y 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			
Total		39	38	56	21	28	18	31	14	5	1	2	4	2	4	3	2	4	8	15	5	4	10	12	11	6	1	2	5	10	77				
VI. DIGESTIVE SYSTEM.		5	4	8	1	3	1	5	1	2	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
1.	Ulcer of the Stomach.....	13	13	7	3	4	2	4	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
2.	Other Dis. of Stom. (cancer except'd)	1	1	1	1	1	1	1	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.	Infan. Diarr. & Cholera Infantum.	5	6	8	2	2	3	5	2	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
4.	Diarr. & Enteritis (not infantile).	2	3	5	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			
5.	Dysentery.....	4	3	5	2	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			
6.	Hernia and Intestinal obstructions	2	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	1	1	1	1		
7.	Other Diseases of the Intestines.	2	4	1	1	6	1	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
8.	Diseases of the Liver.....	2	2	6	1	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		
9.	Feritonitis (not puerperal)	2	1	3	1	1	1	2	1	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
10.	Iliac abscess and appendicitis....	52	36	73	15	44	9	35	30	11	3	1	3	5	4	2	1	2	1	2	1	2	3	8	5	6	1	1	1	1	1	1	1		
Total		3	2	2	3	3	2	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
VII. GENITO-URINARY SYSTM.		3	2	2	3	3	2	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1.	Acute Nephritis.....	1	4	2	3	1	2	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
2.	Bright's Disease.....	1	1	1	1	1	1	1	1	1	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.	Other Dis. of Kidneys & Adnexa	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	
4.	Vesical Calculi.....	1	1	1	1	1	1	1	1	1	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.	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	
6.	Dis. of the male 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	
7.	Metritis.....	1	1	1	1	1	1	1	1	1	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.	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	
9.	Ovarian Cysts & Ovarian Tumors	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
10.	Other Dis. of fem. 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	
Total		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	
VIII. PUERPERAL DISEASES.		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.	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	1	1	1	1	1	1	1	1	1	1	
2.	Puerl Albuminuria and Convul.	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.	Other acc. of Preg., sudden death	1	1	1	1	1	1	1	1	1	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.	Puerperal Disease 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	
Total		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	7

LAMBTON.—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	39	40	41			
IV.—Continued.																																												
3. Organic Heart Diseases				12	5		3	5	9																																			
4. Angina Pectoris																																												
5. Arteries, Atheroma, Aneurism, etc				16	19		4	10	21																																			
6. Other Dis. of Circulatory System.																																												
V. RESPIRATION.																																												
1. Acute Bronchitis				3			3																																					
2. Chronic Bronchitis				6	3		1	2	6																																			
3. Broncho-pneumonia				16	11		8	8	11																																			
4. Pneumonia				1			1																																					
5. Pleurisy				1			7	4	2																																			
6. Congestion of the Lungs				5	8		1	1	1																																			
7. Asthma and Emphysema.				2	3		1	1	3																																			
8. Other Dis. of the Respir. System				1																																								
VI. DIGESTIVE SYSTEM																																												
1. Ulcer of the St. mach.																																												
2. Other Dis. of St. mach. (cancer except'd)				5			4	1																																				
3. Infan. Diarr. and Cholera Infant'm				10	9		19																																					
4. Diarrh. & Enteritis (not infantile)				2	2		1	2	1																																			
5. Dysentery				1			1																																					
6. Hernia and Intestinal obstructions				3	1		2	2	1																																			
7. Other Diseases of the Intestines				5	2		6	1																																				
8. Diseases of the Liver				11	8		12	7																																				
9. Peritonitis (not puerperal)				3	6		8	1	4																																			
10. Iliac abscess and appendicitis.				5	1		4	2																																				
VII. GENITO-URINARY SYSTEM																																												
1. Acute Nephritis				45	29		57	16	1																																			
2. Bright's Disease				3			2	1																																				
3. Other Dis. of Kidneys & Adnexa.				2	4		3	3																																				
4. Vesical Calculi																																												
5. Diseases of the Bladder				3			2	1																																				
6. Dis. of the male Genital Organs																																												
7. Metritis																																												
8. Other Diseases of the Uterus																																												
9. Ovarian Cysts & Ovarian Tumors																																												
10. Other Dis. of fem. Genital Organs.				1			1																																					
VIII. PUERPERAL DISEASES.																																												
1. Puerperal Septicemia				5	8		9	5																																				
Total				4			4																																					

XX.

CAUSES OF DEATHS BY COUNTIES IN 1897.—LEEDS AND GRENVILLE.—POPULATION, 64,693. (Including Municipalities of all classes)

General Diseases.	Sex.		Natvty.		Soc. con		Ages.										Months.										Totals.														
	Male	Female	Canada	Foreign	Single	Married	Not sta.	Under 5.					Ages.					Months.																							
								0.	1.	2.	3.	4.	5-9.	10-14.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45-49.	50-59.	60-69.	70-79.	80 & ov.	Not gvn		Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.		
Number of Column.	1	2	3	4	5	6	7	8	9	0.	1.	2.	3.	4.	5-9.	10-14.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45-49.	50-59.	60-69.	70-79.	80 & ov.	Not gvn	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	41
I. COMMUNICABLE DISEASES	9	5		13	1		5	4	5							1	3	2	3	1	2	1						29	30	31	32	33	34	35	36	37	38	39	40	14	
1. Typhoid Fever.....																																									1
2. Smallpox.....																																									2
3. Measles.....	1	1		1			1			1	1																1													1	
4. Scarlet Fever.....	1	1		1			1			1	1																1													1	
5. Whooping Cough.....	2	3		5			5			2	1																2													5	
6. Diphtheria and Croup.....	9	3		12			11			2	1																3	3	2	2	1	1								12	
7. Influenza.....	10	8		13	5		4	5	9	1	2				3	8	2	1									1	2	7	4	2	1	1							18	
8. Other Epidemic Diseases.....																																									
Total.....	31	21		46	6		28	9	15	6	5	1	4	4	1	2	3	3	3	1	1	2	4	9	2	1	1	6	13	4	4	5	3	2	1	7	4	2	52		
II. OTHER GENERAL DISS.	4	7		9	2		2	7	2																		2													11	
1. Pyemia.....																																								2	
2. Malarial Fever.....																																								1	
3. Tuberculosis and Scrofula.....	35	69		94	10		42	41	21	1	2	1			2	5	22	15	12	7	6	5	5	5	5	6	4	11	4	17	12	5	7	6	15	10	7	104			
4. Syphilis.....																																									
5. Cancer.....	10	15		16	9		3	8	14																		3	1	3	3	2	2	1	2	2	1	3	2		25	
6. Rheumatism and Gout.....																																									
7. Diabetes.....	4	5		8	1		3	1	5																															9	
8. Other General Diseases.....	6	6		4	2		1	3	2																															6	
9. Alcoholism, Acute and Chronic.....	1	1		1	1		1																																	1	
Total.....	54	104		134	24		53	61	44	1	2	2	1	4	7	25	20	16	13	10	8	16	13	14	3	2	11	6	14	11	21	15	13	11	10	19	15	12	158		
Local Diseases.	3	2		5			4		1	2	1	2	1	1													1	1	1	1	1	1	1	1	1	1	1	1	5		
III. NERVOUS SYSTEM.	6	5		13	1		4	6	1	2	1	2	1	1												1	2	1	1	1	2	2	1	1	1	1	3	14			
1. Encephalitis.....																																							1		
2. Simple Meningitis.....	6	5		16	4		4	6	1	2	1	1	1	1												1	1	3	1	1	1	1	1	1	1	1	1	1	11		
3. Epid. c. Cerebro-spinal Meningitis.....	13	25		25	13		7	21	12																	4	4	1	4	3	1	4	6	2	3	2		40			
4. Congestion & Hæmorrhage of Brain.....																																									
5. Softening of Brain.....	15	16		17	14		15	16																		3	2	3	2	3	2	2	4	5	1	3	1	31			
6. Paralysis without specified cause.....																																									
7. Lesanias.....	1	4		2	3		2		3																														2		
8. Epilepsy.....	6	4		10			10		3	8	1	1														2	1	2	1	1	1	1	1	1	1	1	1	10			
9. Convulsions (not puerpera).....	1	1		1	1		1		1																														2		
10. Other Nervous Diseases.....	55	65		81	36		38	48	34	18	5	4	1	1	2	2	4	2	4	2	4	14	24	18	10	3	11	13	8	9	5	12	16	13	6	10	9	120			
Total.....	3	2		1	1		2		1																														6		
IV. CIRCULATORY SYSTEM.	1	1		1	1		2		1																														2		
1. Pericarditis.....																																									
2. Endocarditis.....	3	2		3	2		1	3	1																														5		

LEEDS AND GREENVILLE. — 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	39	40	41		
IV.—Continued.																																											
3. Organic Heart Diseases	16	19		21	14	4	15	16																																			
4. Angina Pectoris	3	3		4	2																																						
5. Arteries, Atheroma, Aneurism, etc	2	2		3	1																																						
6. Other Dis. of Circulatory System.	15	18		20	13	8	17	8																																			
Total	39	46		52	33	14	41	30																																			
V. RESPIRATION.																																											
1. Acute Bronchitis	1			1																																							
2. Chronic Bronchitis	1	1		1	1																																						
3. Broncho-pneumonia																																											
4. Pneumonia	33	31		52	12	29	20	15																																			
5. Pleurisy																																											
6. Congestion of the Lungs	7	6		11	1	1	9	2																																			
7. Asthma and Emphysema.	3	2		3	2		1	1	3																																		
8. Other Dis. of Respiratory System																																											
Total	45	40		68	16	40	24	21																																			
VI. DIGESTIVE SYSTEM.																																											
1. Ulcer of the Stomach.	1			1																																							
2. Other Dis. of Stomach, (cancer excp'd)	4	1		5																																							
3. Infan. Diar. & Cholera Infantum	15	12		27																																							
4. Diarr. & Enteritis (not infantile)	2	4		3																																							
5. Dysentery	1	2		3																																							
6. Hernia and Intestinal obstructions	2	1		3																																							
7. Other Diseases of the Intestines.	7	4		9																																							
8. Diseases of the Liver	7	3		10																																							
9. Peritonitis (not puerperal)	2	2		3																																							
10. Iliac abscess and appendicitis	1	1		2																																							
Total	41	31		66	6	39	18	15																																			
VII. GENITO-URINARY SYST'M																																											
1. Acute Nephritis	2			1																																							
2. Bright's Disease	11	2		11	2																																						
3. Other Dis. of Kidneys & Adnexa.																																											
4. Vesical Calculi																																											
5. Diseases of the Bladder.	1			1																																							
6. Dis. of the male Genital Organs.																																											
7. Metritis																																											
8. Other Diseases of the Uterus																																											
9. Ovarian Cysts & Ovarian Tumors		2		2																																							
10. Other Dis. of fem. Genital Organs		1		1																																							
Total	14	5		16	3	1	6	12																																			
VIII. PUERPERAL DISEASES.																																											
1. Puerperal Septicemia				5																																							
Total				5																																							

LENNOX AND ADDINGTON. -- 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	39	40	41			
IX. THE SKIN.																																												
1. Erysipelas																																												
2. Skin and Adhæxa (Cancer except'd)																																												
X. LOCOMOTOR SYSTEM. Total																																												
1. Pott's Disease.....																																												
2. Diseases of Bones and Joints.....																																												
3. Amputation (for unspecified Dis.)																																												
Total																																												
XI. MALFORMATIONS, ETC.																																												
1. Still Births.....				2			2																																					
2. Congen. Fœtal, and Malformations	18	12	30	30			30																																					
3. Other Diseases of Infancy.....	2	1	3	3			3																																					
3. Senile Decay.....	27	25	29	23			18	34																																				
Total																																												
XII. SUICIDE.																																												
1. Poison.....	49	38		61	23		35	18	34	34	1																																	
2. Strangulation.....																																												
3. Gas Poisoning.....																																												
4. Drowning.....																																												
5. Firearms.....																																												
Total																																												
XIII. ACCIDENTS.																																												
1. Fracture and Dislocations.....	4	2		4	2		1		5																																			
2. Gunshot.....	1								1																																			
3. Lightning.....																																												
4. Drowning.....	2	2		2	2		2		2																																			
5. Electric Cars.....																																												
6. Bicycles.....																																												
7. Railways.....	2	1	3				1		2																																			
8. Burns and Scalds.....	1	1	2				1		1																																			
9. Homicide.....																																												
10. Accidental Poisoning.....																																												
Total																																												
XIV. ILL-DEFINED CAUSES.																																												
1. Dropsy.....	2	1		2	1		1		2																																			
2. Tumors.....	4	2		6			2	1	3																																			
3. Other Ill-Defined Causes.....	2	2		2			1		1																																			
Total																																												
Total from all causes.....																																												
	163	168		233	76		110	79	132		56	14	4	3	7	5	6	12	9	9	8	9	5	7	15	20	45	57	48	1	32	32	27	39	32	18	21	20	16	40	39	17	27	331

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LINCOLN.—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	39	40	41				
Number of Column.																																													
IV.—Continued.																																													
3. Organic Heart Diseases	16	13		19	10		1	11	17																																				
4. Angina Pectoris																																													
5. Arteritis, Atheroma, Aneurism etc	2	3		5			2	3																																					
6. Other Dis. of Circulatory System	18	18		26	10		2	14	20																																				
Total	4	4		6	2		8	3	2		6	2																																	
V. RESPIRATION.																																													
1. Acute Bronchitis	2	3		1			1	3	2																																				
2. Chronic Bronchitis	15	20		23	12		9	9	17		3	2	1	7	10		2	5	7	2	6	2	4	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
3. Broncho-pneumonia	6	3		6	3		4	1	4		4																																		
4. Pneumonia																																													
5. Pleurisy																																													
6. Congestion of the Lungs																																													
7. Asthma and Emphysema																																													
8. Other Dis. of the Respiry System	27	31		36	22		22	13	23		13	3	3																																
Total	1	2		1	2		1	1	1		1																																		
VI. DIGESTIVE SYSTEM.																																													
1. Ulcer of the Stomach	9	5		13	1		13	1																																					
2. Other Dis. of Stom. (cancer excp'd)	2	2		3	1		2	1																																					
3. Infan. Diarr. & Cholera Infantum																																													
4. Diarr. & Enteritis (not infantile)																																													
5. Dysentery																																													
6. Hernia and Intestinal obstruction																																													
7. Other Dis. of the Intestines	4	2		4	2		3	2	1		1																																		
8. Diseases of the Liver	3	3		6	6		3	2	1		1																																		
9. Peritonitis (not purpural)	1	1		2	2		1	1																																					
10. Iliac abscess and appendicitis																																													
Total	21	19		33	7		23	7	10		15	1																																	
VII. GENITO-URINARY SYST.																																													
1. Acute Nephritis	1	4		1			1	3	3																																				
2. Bright's Disease	3	4		4	3		1	3	1																																				
3. Other Dis. of Kidneys & Adnxa.	1	1		1																																									
4. Vesical Calculi																																													
5. Diseases of the Bladder	2			2					2																																				
6. Dis. of the male Genital Organs.																																													
7. Metritis																																													
8. Other diseases of the Uterus																																													
9. Ovarian Cysts & Ovarian Tumors		2		2					1																																				
10. Other Dis. of fem. Genital Organs.																																													
Total	7	6		10	3		1	4	8																																				
VIII. PUERPERAL DISEASES.																																													
1. Puerperal Septicæmia		6		5	1		6																																						
Total		6		5	1		6																																						

3. Organic Heart Diseases	38	32	20	35	7	20	88	1	1	3	5	6	1	4	7	20	11	3	5	7	6	9	8	5	4	2	5	8	2	65
4. Arteries, Aneurism, etc	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
5. Arteries, Atheroma, Aneurism, etc	5	6	5	1	4	7	7	1	1	2	1	2	1	2	3	1	2	1	1	1	2	1	1	3	3	2	2	2	11	
6. Other Dis. of Circulatory System	42	59	59	41	8	24	49	2	2	3	5	4	7	3	6	24	12	3	1	7	9	7	8	8	4	5	2	7	81	
Total	14	13	22	5	23	2	2	17	2	1	1	1	1	1	1	1	1	1	1	8	3	3	1	1	1	1	2	8	27	
V. RESPIRATION.	6	10	6	5	6	4	1	2	1	1	1	1	1	2	1	1	2	1	1	4	2	1	1	2	1	1	2	16	10	
1. Acute Bronchitis	2	9	6	5	6	4	1	2	1	1	1	1	1	2	1	1	2	1	1	2	1	1	1	2	1	1	2	11	11	
2. Chronic Bronchitis	59	23	34	26	17	13	32	8	2	1	2	3	6	3	5	8	10	7	12	17	2	6	5	2	1	3	5	2	62	
3. Broncho-pneumonia	1	3	2	1	2	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	34	
4. Pneumonia	13	21	26	8	18	6	10	12	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	34	34	
5. Pleurisy	1	1	1	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	2	
6. Congestion of the Lungs	1	1	1	1	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	
7. Asthma and Emphysema	1	1	1	1	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	2
8. Other Dis. of the Respiry System	77	83	99	58	67	34	59	39	5	2	4	3	4	5	5	4	7	5	9	18	28	17	26	23	28	12	14	7	5	100
Total	2	2	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	2	3
VI. DIGESTIVE SYSTEM.	21	14	35	11	35	4	8	32	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	35	35	
1. Ulcer of the Stomach	9	8	11	6	4	5	8	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	17	
2. Other Dis. of Stom. (cancer excep'd)	3	2	3	2	2	1	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	6	
3. Infan. Diar. & Cholera Infantum	1	1	1	1	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	2
4. Diarr. & Enteritis (not Infantile)	3	2	3	2	2	1	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
5. Dysentery	3	2	3	2	2	1	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
6. Hernia and Intestinal obstructions	3	2	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	5	5
7. Other Diseases of the Intestines	8	5	4	9	6	8	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13	13
8. Diseases of the Liver	8	7	11	4	3	5	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	15
9. Peritonitis (not puerperal)	4	4	4	4	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4
10. Iliaic abscess and appendicitis	6	4	75	25	45	19	57	33	3	2	1	3	4	3	6	2	7	7	10	12	1	5	6	7	4	6	5	21	18	101
Total	5	8	25	15	15	8	24	6	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	8	8
VII. GENITO-URINARY SYSTEM	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	37
1. Acute Nephritis	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	37
2. Bright's Disease	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	37
3. Other Dis. of Kidneys & Adnexa	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	37
4. Vesical Calculi	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	37
5. Diseases of the Bladder	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	37
6. Dis. of the male Genital Organs	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	37
7. Merritis	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	37
8. Other Diseases of the Uterus	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	37
9. Ovarian Cysts & Ovarian Tumors	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	37
10. Other Dis. of fem. Genital Organs	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	37
Total	33	15	25	21	1	5	10	33	1	2	1	3	2	4	4	8	9	10	4	2	7	8	4	4	2	4	2	3	6	48
VIII. PUERPERAL DISEASES	5	6	4	1	5	8	24	6	1	2	2	2	2	4	7	7	2	2	2	1	4	7	4	3	2	1	2	3	5	8
1. Puerperal Septicemia	5	6	4	1	5	8	24	6	1	2	2	2	2	4	7	7	2	2	2	1	4	7	4	3	2	1	2	3	5	8
2. Puerp'l Albuminuria and Convul	3	3	2	1	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3
3. Other acc. of Preg, sudden death	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
4. Puerperal Disease 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
Total	10	10	8	2	1	9	1	10	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	10

MIDDLESEX.—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	39	40	41						
IX. THE SKIN.																																															
1. Erysipelas	4	2	..	3	1	1	4	2	1	1	6					
2. Skin and Adnexa (Cancer except'd)			
X. LOCOMOTOR SYST'M. Total	4	2	..	3	3	..	1	1	4	1	6			
1. Pott's Disease			
2. Diseases of Bones and Joints		
3. Amputation (for unspecified Dis.)		
Total			
XI. MALFORMATIONS, ETC.																																															
1. Still Births	13	12	..	25	25		
2. Concn. Ptebil. & Malformations	22	35	..	57	57	
3. Other Diseases of Infancy	2	2	2		
4. Senile Decay	67	66	..	25	165	3	1	43	89		
Total	104	113	..	103	165	3	85	43	89	84		
XII. SUICIDE.																																															
1. Poi-on	4	2	
2. Strangulation	2	1	..	2	1	2	
3. Gas Poisoning	
4. Drowning	
5. Firearms	
Total	6	1	..	4	3	..	1	6	
XIII. ACCIDENTS.																																															
1. Fractures and Dis'locations	7	6	..	8	5	..	6	7
2. Gunshot	
3. Lightning	
4. Drowning	1	1	
5. Electric Cars	1	1	
6. Bicycles	2	1	
7. Railways	4	1	..	4	1	..	3	2	
8. Burns and Scalds	
9. Homicide	1	1		
10. Accidental Poisoning	
Total	16	7	..	15	8	..	4	6	13	1	
XIV. ILL-DEFINED CAUSES.																																															
1. Dropsy	9	11	..	9	10	1	11	9	
2. Tumors	7	6	..	5	8	..	3	10	
3. Other Ill-Defined Causes	6	5	..	9	2	..	2	4	5	
Total	22	22	..	23	20	1	2	18	24	
Total from all causes	591	571	..	722	429	11	407	260	495	204	21	12	15	15	32	26	40	38	42	46	41	86	124	179	135	4	91	118	133	109	94	80	67	83	117	93	96	81	

3. Organic Heart Diseases.....	4	16	4	7	9	4	1	1	2	1	5	1	2	1	1	3	1	2	2	20
4. Angina Pectoris.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5. Arterio, Atheroma, Aneurism, etc	3	4	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5
6. Other Dis. of Circulatory System.	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26
Total.....	7	21	5	8	11	7	2	3	2	2	5	10	2	1	2	3	8	3	2	4
V. RESPIRATION.	2	4	2	4	2	4	2	2	2	1	1	1	1	1	1	1	1	1	1	6
1. Acute Bronchitis.....	1	4	2	4	2	4	2	2	2	1	1	1	1	1	1	1	1	1	1	6
2. Chronic Bronchitis.....	1	4	2	4	2	4	2	2	2	1	1	1	1	1	1	1	1	1	1	6
3. Broncho-pneumonia.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4. Pneumonia.....	12	17	4	6	3	12	3	3	2	3	4	2	3	1	1	1	1	1	1	21
5. Pleurisy.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
6. Congestion of the Lungs.....	3	11	3	7	5	2	5	2	1	1	1	1	1	1	1	1	1	1	1	14
7. Asthma and Emphysema.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8. Other Dis. of the R. sp.ry System.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total.....	19	39	16	17	15	17	10	2	2	2	8	8	10	4	1	1	1	1	1	49
VI. DIGESTIVE SYSTEM.	9	16	7	16	7	13	3	1	1	1	1	1	1	1	1	1	1	1	1	16
1. Ulcer of the Stomach.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. Other Dis. of Stom (cancer except)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3. Infan. Diarr. and Cholera Infant'm	9	7	4	16	7	13	3	1	1	1	1	1	1	1	1	1	1	1	1	16
4. Diarr. and Enteritis (not in'anti e)	6	5	4	8	3	4	2	5	2	2	1	2	1	2	1	1	1	1	1	11
5. Dysentery.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6. Hernia and Intestinal obstructions	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7. Other Diseases of the Intestines.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8. Diseases of the Liver.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9. Peritonitis (not puerperal).....	2	4	1	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10. Iliac abscess and appendicitis.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total.....	21	34	6	24	8	8	13	4	1	2	3	1	3	3	1	1	1	1	1	40
VII. GENITO-URINARY SYSTM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1. Acute Nephritis.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. Bright's Disease.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3. Other Dis. of Kidneys & Adnaxa.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4. Vesical Calculi.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5. Diseases of the Bladder.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6. Dis. of the male Genital Organs.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7. Metritis.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8. 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
9. Ovarian Cysts & Ovarian Tumors	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10. Other Dis. of fem. Genital Organs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total.....	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
VIII. PUERPERAL DISEASES.	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1. Puerperal Septicemia.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. Puer'l Albuminuria and Convul.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3. Other acc. of Preg. sudden death	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4. Puerperal Disease of the Breast.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total.....	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

NORFOLK. — 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	39	40	41			
IX. THE SKIN.																																												
1. Erysipelas																																												
2. Skin and Adnexa (Cancer except d)																																												
X. LOCOMOTOR SYSTEM. Total																																												
1. Pott's Disease	1																																											
2. Diseases of Bones and Joints																																												
3. Amputation (for unspecified Dis.)																																												
Total																																												
XI. MALFORMATIONS, ETC.																																												
1. Still-Births	2	2		4			4																																					
2. Congen. Debil. and Malformations	7	9		16			16																																					
3. Other Diseases of Infancy	8	7		15			14																																					
4. Senile Decay	26	16		31	11		1	20	21																																			
Total																																												
XII. SUICIDE,																																												
1. Poison	1																																											
2. Strangulation																																												
3. Gas Poisoning																																												
4. Drowning																																												
5. Firearms																																												
Total																																												
XIII. ACCIDENT.																																												
1. Fractures and Dislocations	7	2		7	2			3	2																																			
2. Gunshot	1	2		3				3																																				
3. Lightning																																												
4. Drowning																																												
5. Electric Cars																																												
6. Bicycles																																												
7. Railways																																												
8. Burns and Scalds																																												
9. Homicide																																												
10. Accidental Poisoning																																												
Total																																												
XIV. ILL-DEFINED CAUSES.																																												
1. Dropsy	2			2				1	3																																			
2. Tumors	2	4		5	1			2	2																																			
3. Other Ill-Defined Causes		4		4				2	2																																			
Total																																												
Total from all causes																																												
	179	221	340	59	1	165	121	114	114	69	17	6	1	4	13	15	11	15	21	16	8	9	20	28	43	63	40	1	29	40	46	42	22	35	27	20	44	36	32	400				

NIPissing. — 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	39	40	41	
IX. THE SKIN.																																										
1. Erysipelas.....																																										
2. Skin and Adnexa (cancer except'd)																																										
X. LOCOMOTOR SYSTEM. Total																																										
1. Pott's Disease.....																																										
2. Diseases of Bones and Joints.....																																										
3. Amputation (for unspecified Dis.).....																																										
Total.....																																										
XI. MALFORMATIONS.																																										
1. Still Births.....	12	6	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
2. Congen. Debil. & Malformations.....	45	22	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
3. Other Diseases of Infancy.....	8	4	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
4. Senile Decay.....	10	3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Total.....																																										
XII. SUICIDE. Total																																										
1. Poison.....	75	35	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	
2. Strangulation.....																																										
3. Gas Poisoning.....																																										
4. Drowning.....																																										
5. Firearms.....																																										
XIII. ACCIDENTS. Total																																										
1. Fractures and Dislocations.....	5	2	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	7	7	7	7	7	7	
2. Gunshot.....	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	2	2	2	2	2		
3. Lightning.....	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	2	2	2	2	2		
4. Drowning.....	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
5. Electric Cars.....																																										
6. Bicycles.....																																										
7. Railways.....	3	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
8. Burns and Scalds.....																																										
9. Homicide.....																																										
10. Accidental Poisoning.....																																										
Total.....																																										
XIV. ILL-DEFINED CAUSES.																																										
1. Tumors.....	5	3	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	8	
2. Dropsy.....	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	2	2	2	2	2		
3. Other Ill-Defined Causes.....	7	6	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10		
Total.....																																										
Total from all causes.....																																										
	179	115	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	

OXFORD.—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	39	40	41															
IX. THE SKIN.																																																								
1. Erysipelas																																																								
2. Skin and Adnexa																																																								
X. LOCOMOTOR SYSTM. Total.																																																								
1. Pott's Disease				1			1																																																	
2. Diseases of Bones and Joints																																																								
3. Amputation (for unspecified Dis.)																																																								
XI. MALFORMATIONS, ETC. Total.																																																								
1. Still Births	17	15	32	32			32			32																																														
2. Congen. Debil. and Malformations	17	17	34	34			34			34																																														
3. Other Diseases of Infancy	2		2	2			2			2																																														
4. Senile Decay	39	42	17	64			1	47	33																																															
XII. SUICIDE. Total.																																																								
1. Poison	75	74	85	64			69	47	33	68																																														
2. Strangulation	1	2	3					2	1																																															
3. Gas Poisoning	1	1	1					1																																																
4. Drowning																																																								
5. Firearms																																																								
XIII. ACCIDENTS. Total.																																																								
1. Fracture and Dislocations	12	4	12	4			2	6	8																																															
2. Gunshot	1	1	1																																																					
3. Lightning																																																								
4. Drowning	1		1				1																																																	
5. Electric Cars																																																								
6. Bicycles																																																								
7. Railways	2	1	1					2																																																
8. Burns and Scalds		1	1					1																																																
9. Homicide																																																								
10. Accidental Poisoning																																																								
XIV. ILL-DEFINED CAUSES. Total.																																																								
1. Dropsy	16	5	14	7			3	7	11																																															
2. Tumors	8	2	8	2				5																																																
3. Other Ill-Defined Causes	1	6	5	2				4	3																																															
Total from all causes	319	306	420	205	211	243	171	112	14	6	3	4	19	10	18	20	28	31	31	21	49	86	93	59	66	50	59	66	50	66	50	66	50	66	50	66	50	66	50	66	50	66	50	66	50	66	50	66	50	66						

C.V.

3. Organic Heart Diseases.....	5	5	1	5	4	1	1	2	2	4	1	2	1	1	1	1	1	1	10
4. Angina Pectoris.....	5	5	1	5	4	1	1	2	2	4	1	2	1	1	1	1	1	1	11
5. Arteries, Atheroma, Aneurism, etc.	4	8	2	5	5	1	1	2	1	2	3	1	6	1	1	1	1	12	
6. Other Dis. of Circulatory System	9	14	3	11	9	1	1	2	1	2	6	4	7	1	3	2	1	23	
V. RESPIRATORION.																			
1. Acute Bronchitis.....	2	2	4	1	2	3	1	1	1	1	1	1	1	1	1	1	1	4	
2. Chronic Bronchitis.....	2	2	1	3	1	1	1	1	1	2	1	1	1	1	1	1	1	4	
3. Broncho-pneumonia.....	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
4. Pneumonia.....	5	8	4	7	2	1	1	2	1	1	1	1	2	4	1	1	1	13	
5. Pleurisy.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	
6. Congestion of the Lungs.....	4	3	4	3	4	1	1	1	1	1	1	1	1	2	1	1	1	1	
7. Asthma and Emphysema.....	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
8. Other Dis. of Respiratory System	14	18	1	13	10	9	4	2	1	1	1	2	1	1	2	9	3	32	
VI. DIGESTIVE SYSTEM.																			
1. Ulcer of the Stomach.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
2. Other Dis. of Stom. (cancer exclud)	1	2	3	1	1	1	2	1	1	1	1	1	1	1	1	1	1	3	
3. Infant. Diarr. & Cholera Infantum	3	3	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	3	
4. Diarr. & Enteritis (not infantile)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
5. Dysentery.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
6. Hernia & Intestinal obstructions	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
7. Other Diseases of the Intestines.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
8. Diseases of the Liver.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
9. Peritonitis (not puerperal)	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	
10. Iliac abscess and a peridicitis.....	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	
Total.....																			
VII. GENITO-URINARY SYSTM.																			
1. Acute Nephritis.....	3	1	1	3	1	1	1	1	1	2	1	1	1	1	1	1	1	4	
2. Bright's Disease.....	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	
3. Other Dis. of Kidneys & Adnexa.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4. Vesical Calculi.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
5. Diseases of the Bladder.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
6. Dis. of the male Genital Organs.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
7. Metritis.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
8. Other Diseases of the Uterus.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
9. Ovarian Cysts & Ovarian Tumors	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
10. Other Dis. of fem. Genital Organs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Total.....																			
VIII. PUERPERAL DISEASES																			
1. Puerperal Septicæmia.....	6	1	3	4	1	1	5	1	1	2	2	2	1	1	1	1	1	7	
2. Puerl. Albuminuria and Convul.	3	3	3	3	3	3	3	1	1	1	1	1	1	1	1	1	1	3	
3. Other acc. of Preg., sudden death	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4. Puerperal Disease of the Breast.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Total.....																			

C.K.

PEEL. — 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	39	40	41	
IX. THE SKIN.																																										
1. Erysipelas																																										
2. Skin and Adnexa (cancer excepted)																																										
X. LOCOMOTOR SYSTM. Total																																										
1. Pott's Disease																																										
2. Diseases of Bones and Joints																																										
3. Amputation (for unspecified Dis.)																																										
XI. MALFORMATIONS, ETC. Total																																										
1. Still-Births			3																																							
2. Congen. Debil. & Malformations			8																																							
3. Other Diseases of Infancy			1																																							
4. Senile Decay			3	29	2			17	17																																	
XII. SUICIDE. Total																																										
1. Poison		2			15	29	2	12	17	17	12																															
2. Strangulation		1			1																																					
3. Gas Poisoning					1																																					
4. Drowning		1																																								
5. Firearms					1																																					
XIII. ACCIDENTS. Total																																										
1. Fractures and Dislocations		3	2																																							
2. Gunshot																																										
3. Lightning																																										
4. Drowning		1																																								
5. Electric Cars																																										
6. Bicycles																																										
7. Railways																																										
8. Burns and Scalds																																										
9. Homicide																																										
10. Accidental Poisoning																																										
XIV. ILL-DEFINED CAUSES. Total																																										
1. Dropsy		3	2																																							
2. Tumors		2	2																																							
3. Other Ill-Defined Causes		1																																								
Total																																										
Total from all causes																																										
	112	128	142	94	4	79	89	26	3	4	4	4	4	7	4	6	18	12	11	7	7	8	17	29	43	31		14	21	38	23	20	12	18	23	18	22	12	13	210		

CX.

3. Organic Heart Diseases.....	10	8	11	7	2	6	10	2	1	4	1	2	1	4	1	2	1	4	1	18
4. Angina Pectoris.....	4	4	7	1	1	3	4	1	2	1	1	1	3	2	2	1	3	2	2	8
5. Arterieg Atheroma, Aneurism, etc																				
6. Other Dis. of Circulatory System.	14	12	18	8	3	9	14	2	1	4	1	2	4	6	3	1	2	4	6	26
Total.....																				
V. RESPIRATION.																				
1. Acute Bronchitis.....	4	3	6	1	6	1	5	1	1	5	1	1	2	1	1	2	2	1	1	7
2. Chronic Bronchitis.....	3	5	7	1	5	2	1	1	1	2	1	1	1	1	2	1	2	1	1	8
3. Broncho-pneumonia.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
4. Pneumonia.....	13	6	15	4	10	1	8	4	2	3	1	2	4	2	1	1	3	3	1	19
5. Pleurisy.....	8	2	9	1	7	3	3	2	1	1	1	1	2	2	1	1	2	1	1	10
6. Congestion of the Lungs.....																				
7. Asthma and Emphysema.....																				
8. Other Dis. of the Respy System																				
Total.....																				
VI. DIGESTIVE SYSTEM.																				
1. Ulcer of the Stomach.....	2	1	2	1	2	1	3	1	1	2	1	1	2	1	1	1	1	1	1	3
2. Other Dis. of Stom. (cancer except'd)	10	3	13	1	13	2	10	2	1	1	2	1	1	3	2	2	2	2	2	13
3. Infan. Diarr. & Cholera Infantum	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	3
4. Diarr. & Enteritis (not infantile).	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
5. Dysentery.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
6. Hernia and Intestinal obstructions	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
7. Other Diseases of the Intestines.	5	2	6	1	1	2	4	1	2	1	1	1	1	2	1	2	3	1	1	7
8. Diseases of the Liver.....	3	2	5	2	2	3	3	2	1	1	2	1	1	1	1	1	3	1	1	5
9. Peritonitis (not puerperal)	1	1	2	2	2	2	3	2	1	1	2	1	1	1	1	1	1	1	1	7
10. Iliac abscess and appendicitis.....	1	1	2	2	2	2	3	2	1	1	2	1	1	1	1	1	1	1	1	5
Total.....																				
VII. GENITO-URINARY SYSM.																				
1. Acute Nephritis.....	3	3	3	3	2	1	8	1	1	1	1	1	1	1	2	1	1	1	1	6
2. Bright's Disease.....	3	1	1	3	1	3	1	3	1	1	2	1	1	1	2	1	1	1	1	4
3. Other Dis. of Kidneys & Adnexa.	3	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
4. Vesical Calculi.....																				
5. Diseases of the Bladder.....	3	3	1	2	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1	3
6. Dis. of the male Genital Organs.																				
7. Meteritis.....																				
8. Other Diseases of the Uterus...																				
9. Ovarian Cysts & Ovarian Tumors																				
10. Other Dis of fem. Genital Organ-																				
Total.....																				
VIII. PUERPERAL DISEASES.																				
1. Puerperal Septicæmia.....	9	7	6	10	3	3	10	1	1	2	3	2	4	1	2	3	2	1	2	16
2. Puerl Albuminuria and Convul.																				
3. Other acc. of Preg., sudden death																				
4. Puerperal Disease of the Breast..																				
Total.....																				

CAUSES OF DEATHS BY COUNTIES IN 1897. — PRINCE EDWARD. — POPULATION, 20,005. (Including Municipalities of all classes.)

General Diseases.	Sex.		Natvty.		Soc'l con.		Ages.					Months.												Totals.											
	Male.	Female.	Canada.	Foreign.	Single.	Married.	Under 5.					Nov & Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.		Dec.										
							0-1.	1-2.	3-4.	5-9.	10-14.															15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45-49.	50-59.	60-69.	70-79.	80 & ov.
Number of Colours																																			
I. COMMUNICABLE DISEASES.																																			
1. Typhoid Fever.....	1	2	4	5	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					
2. Smallpox.....																																			
3. Measles.....																																			
4. Scarlet Fever.....																																			
5. Whooping Cough.....	1	7	2	2	2	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			
6. Diphtheria and Croup.....	2	2	4	4	4	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			
7. Influenza.....																																			
8. Other Epidemic Diseases.....																																			
II. OTHER GENERAL DISES.																																			
1. Pyæmia and Septicæmia.....	6	11	17	17	17	17	1	1	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. Malarial Fever.....																																			
3. Tuberculosis and Scrophula.....	12	13	24	24	24	24	6	7	12	3	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
4. Syphilis.....																																			
5. Cancer.....	6	8	12	2	2	2	1	7	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		
6. Rheumatism and Gout.....	1		1	1	1	1																													
7. Diabetes.....	1		1	1	1	1																													
8. Other General Diseases.....	1		1	1	1	1																													
9. Alcoholism, Acute and Chronic.....	1		1	1	1	1																													
Total.....																																			
III. NERVOUS SYSTEM.																																			
1. Encephalitis.....	2	2	4	4	4	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		
2. Simple Meningitis.....	2	2	4	4	4	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	
3. Epid c. Cerebro-spinal Meningitis.....	4	4	4	4	4	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	
4. Congestion & Hemorrhage of Brain.....	1	1	1	1	1	1																													
5. Softening of the Brain.....	1	1	1	1	1	1																													
6. Paralysis without specified cause.....	6	4	6	4	4	4	1	2	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	
7. Insanity.....	1	1	1	1	1	1																													
8. Epilepsy.....	1	1	1	1	1	1																													
9. Convulsions (not puerperal).....	2	1	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	
10. Other Nervous Diseases.....	1	1	1	1	1	1																													
Total.....																																			
IV. CIRCULATORY SYSTEM.																																			
1. Pericarditis.....	19	8	21	6	6	6	6	5	16	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	
2. Endocarditis.....																																			

KAINY RIVER.—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	39	40	41
IX. THE SKIN.																																									
1. Erysipelas																																									
2. Skin and Adnexa (Cancer except'd)																																									
X. LOCOMOTOR SYSTM. Total																																									
1. Pott's Disease																																									
2. Diseases of Bones and Joints																																									
3. Amputation (for unspecified Dis.)																																									
XI. MALFORMATIONS, ETC. Total																																									
1. Still Births	5			5			5			5																															
2. Congen. Debil. and Malformations	5			10			10			10																															
3. Other Diseases of Infancy																																									
4. Senile Decay	1						1																																		
XII. SUICIDE. Total																																									
1. Poison	10			16			15			15																															
2. Strangulation																																									
3. Gas Poisoning																																									
4. Drowning																																									
5. Firearms																																									
XIII. ACCIDENTS. Total																																									
1. Fracture and Dislocations	2			2						2																															
2. Gunshot	1			1						1																															
3. Lightning																																									
4. Drowning	7			9			2			6																															
5. Electric Cars																																									
6. Bicycles																																									
7. Railways	2			2			2			2																															
8. Burns and Scalds																																									
9. Homicide																																									
10. Accidental Poisoning																																									
XIV. ILL-DEFINED CAUSES. Total																																									
1. Dropsy	12			14			2			11																															
2. Tumors	1			1						1																															
3. Other Ill-Defined Causes	1			3			2			2																															
Total																																									
Total from all causes	92	56	143	45	19	84	45	44	12	5	4	3	6	5	7	13	11	8	4	9	5	3	2	12	9	12	12	13	11	13	10	23	13	6	18	18	4				

SIMCOE.—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	39	40	41
IV.—Continued.																																									
3. Organic Heart Diseases				14	17		7	13	11					1	1	5	1	1	1	2	4	6	6	2	2				1	3	5	2	2	6	3	3	3	3	31		
4. Angina Pectoris	1								1																																1
5. Arteries, Atheroma, Aneurism, etc.	14	15		23	6		3	17	9	1	1	1	1	1	3	1	3	1	1	6	11							4	5	1	4	1	3	1	3	1	1	2	3		29
6. Other Dis. of Circulatory System	33	28		37	24		10	30	21	1	1	1	1	2	1	5	3	2	1	4	3	6	12	17	2	2		5	8	6	6	3	3	7	4	4	5	6		61	
Total.																																									
V. RESPIRATION.																																									
1. Acute Bronchitis	17	7		23	1	2	20	2	2	2	9	3	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	3	5	2	3	1	2	1	1	1	2	24		
2. Chronic Bronchitis	7	5		6	6		1	2	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	1	2	1	1	1	1	1	1	12		
3. Broncho-pneumonia	4	1		3	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	5		
4. Pneumonia	28	18		29	17		20	12	14	1	4	4	1	1	2	4	3	1	4	2	2	2	6	4	5			1	5	13	4	8	3	4	1	1	2	1	3	46	
5. Pleurisy	16	11		17	9		8	7	12	4	3	3	1	1	1	3	3	1	1	3	6	1	1	1	1	1	1	1	2	9	1	5	1	1	1	1	1	1	27		
6. Congestion of the Lungs	2	2		3	1		2	2	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	4		
7. Asthma and Emphysema																																									
8. Other Dis. of the Respiry System	75	44		82	36		52	26	41	17	11	2	3	1	4	3	6	3	2	6	9	4	3	5	18	12	9	11	15	31	8	18	4	6	2	6	5	4	119		
Total.																																									
VI. DIGESTIVE SYSTEM.																																									
1. Ulcer of the Stomach	8	2		7	3		1	4	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	10	
2. Other Dis. of Stomach (Cancer except'd)	12	9		22			22			19	3																		3	1	1	1	3	9	4	1	22				
3. Infan. Diarr. & Cholera Infantum	7	4		9	2		4	3	4	2	2	1	2	1	2	1	2	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	
4. Diarr. & Enteritis (not infantile).	2	3		3	2		1	2	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	5		
5. Dysentery	2	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	1	1	1	1	1	1	1	3		
6. Hernia and Intestinal obstructions	2	3		3	2		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	5	
7. Other Diseases of the Intestines.	5	9		9	5		3	8	3	2	3	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	1	1	1	1	1	1	1	14		
8. Diseases of the Liver	6	1		5	2		1	2	4	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	7	
9. Peritonitis (not puerperal)	5	5		9	1		6	2	2	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	10	
10. Iliaec abscess and appendicitis ..	49	38		69	19		41	24	23	20	3	1	1	2	4	4	3	4	4	8	4	7	10	5	4			2	3	9	9	9	10	7	10	18	10	3	88		
Total.																																									
VII. GENITO-URINARY SYSTEM.																																									
1. Acute Nephritis	1	1		1	1		2			1																															2
2. Bright's Disease	9	5		8	6		1	8	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	14	
3. Other Dis. of Kidneys & Adnexa.	1			1			1																																	1	
4. Vesical Calculi																																									
5. Diseases of the Bladder	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	2	
6. Dis. of the male Genital Organs.																																									
7. Metritis																																									
8. Other diseases of the Uterus																																									
9. Ovarian Cysts & Ovarian Tumors																																									
10. Other Dis. of fem. Genital Organs																																									
Total.																																									
VIII. PUERPERAL DISEASES.																																									
1. Puerperal Septicæmia	13	6		11	8		3	10	6	2																															19
Total.																																									
CXXX.																																									

STORMONT, DUNDAS AND GLENGARRY. —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	39	40	41	
IX. THE SKIN.																																										
1. Erysipelas.....																																										
2. Skin and Adnexa (cancer except'd)																																										
X. LOCOMOTOR SYSTEM. Total																																										
1. Pott's Disease.....																																										
2. Diseases of Bones and Joints.....																																										
3. Amputation (for unspecified Dis.)																																										
Total																																										
XI. MALFORMATIONS, ETC.																																										
1. Still-Births.....				24																																						
2. Congen. Debil. & Malformations				78																																						
3. Other Diseases of Infancy.....				1																																						
4. Senile Decay.....				99	52	2	2	121	30																																	
Total																																										
XII. SUICIDE.																																										
1. Poison.....																																										
2. Strangulation.....																																										
3. Gas Poisoning.....																																										
4. Drowning.....																																										
5. Firearms.....																																										
Total																																										
XIII. ACCIDENTS.																																										
1. Fractures and Dislocations.....				14	2																																					
2. Gunshos.....																																										
3. Lightning.....																																										
4. Drowning.....				8	1		2																																			
5. Electric Cars.....																																										
6. Bicycles.....																																										
7. Railways.....				2			2																																			
8. Burns and Scalds.....				3			3																																			
9. Homicide.....																																										
10. Accidental Poisoning.....																																										
Total																																										
XIV. ILL-DEFINED CAUSES.																																										
1. Dropsy.....				19	6																																					
2. Tumors.....				5	13																																					
3. Other Ill-Defined Causes.....				2	3																																					
Total																																										
Total from all causes.....																																										
468	474		815	118	9	399	393	150	180	36	27	10	27	35	29	32	17	16	50	96	132	127	10	81	117	80	59	63	91	83	79	78	61	64	912							

CXXXXIV.

THUNDER BAY.—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	5	36	37	38	39	40	41							
IV.—Continued.																																																
3. Organic Heart Diseases	5	1		2	3	1	4	2											3	1			1																									
4. Angina Pectoris																																																
5. Aortic Atheroma, Aneurism, etc.																																																
6. Other Dis. of Circulatory System.																																																
V. RESPIRATORY.																																																
1. Acute Bronchitis	6	1		3	3	1	1	4	2										3	1			1																									
2. Chronic Bronchitis	1	4		5			5			2	1	1																																				
3. Broncho-pneumonia	2			2			1	1																																								
4. Pneumonia	3	1		3	1		3	1																																								
5. Pleurisy																																																
6. Congestion of the Lungs	2	4		6			6			2	1	1	1																																			
7. Asthma and Emphysema	1			1			1																																									
8. Other Dis. of Respiratory System.																																																
VI. DIGESTIVE SYSTEM.																																																
1. Ulcer of the Stomach	7	11		17	1		16	1		7	2	2	1	1																																		
2. Other Dis. of Stomach (cancer excepted)																																																
3. Infant. Diarr. & Cholera Infantum.	1	6		7			7																																									
4. Diarr. & Enteritis (not infantile)																																																
5. Dysentery																																																
6. Hernia and Intestinal obstructions	1	3		4			4																																									
7. Other Diseases of the Intestines																																																
8. Diseases of the Liver																																																
9. Peritonitis (not puerperal)																																																
10. Uliac abscess and appendicitis	1			1			1																																									
VII. GENITO-URINARY SYSTEM.																																																
1. Acute Nephritis	4	10		14			9	2	3	7																																						
2. Bright's Disease	1			1			1																																									
3. Other Dis. of Kidneys & Adnaxa.																																																
4. Vesical Calculi																																																
5. Diseases of the Bladder																																																
6. Dis. of the male Genital Organs.																																																
7. Metritis																																																
8. Other Diseases of the Uterus																																																
9. Ovarian Cysts & Ovarian Tumors																																																
10. Other Dis. of fem. Genital Organs																																																
VIII. PUERPERAL DISEASES.																																																
Puerperal Septicæmia	1	1		1					2										1																													
Total																																																

CAUSES OF DEATHS BY COUNTIES IN 1897.—WATERLOO.—POPULATION, 53,633. (Including Municipalities of all classes.)

General Diseases.	Number of Column.	Sex.		Natyty		Soc. con.		Ages.												Months.												Totals.												
		Male.	Female.	Canada.	Foreign.	Not sta.	Single.	Married.	Not sta.	Under 5.						Ages.						Months.																						
										1	0	1	2	3	4.	5-9.	10-14.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45-49.	50-59.	60-69.	70-79.	80 & ov.	Jan.	March.	April.		May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.				
I. COMMUNICABLE DISEASES.		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	39	40	41		
1. Typhoid Fever.....		4	3					4	2	1																																		7
2. Smallpox.....																																												5
3. Measles.....		13	13	24	2			5	2		5	1	1	3	2	13	3													1	5	4	3	2	2	5	2							26
4. Scarlet Fever.....		10	7	8	9			5	5	7	4	2																		2	8	6												17
5. Whooping Cough.....																																												5
6. Diphtheria and Croup.....																																												17
7. Influenza.....																																												55
8. Other Epidemic Diseases.....		29	26					41	11		8					13	4													3	13	12												55
Total.....		1	4					2	3		1																		2	1													5	
II. OTHER GENERAL DISS.		22	22					26	8		10																		5	3	4	4	5	5	3	2	1						44	
1. Pyaemia and Septicaemia.....		10	11					11	10		3																		1	2	1	1	2	1	1	1	1						21	
2. Malarial Fever.....		1	3					1	1		1																		1	1	1	1	1	1	1	1	1						2	
3. Tuberculosis and Scrofula.....		1	1					1	1		1																		1	1	1	1	1	1	1	1	1						4	
4. Syphilis.....		5	3					4	4		1																		1	1	1	1	1	1	1	1	1						8	
5. Cancer.....																																											8	
6. Rheumatism and Gout.....																																											8	
7. Diabetes.....																																											4	
8. Other General Diseases.....																																											4	
9. Alcoholism, Acute and Chronic.....		40	44					58	26		14																		9	8	6	7	8	5	10	7	4	4	5	81				
Total.....		2	4					2	6		1																		1	1													2	
III. NERVOUS SYSTEM.		3	2					5	6		1																		2	1													5	
1. Encephalitis.....		3	2					3	6		1																		1	1													9	
2. Simple Meningitis.....		1	1					1	1		2																		1	1													5	
3. Epidic Cerebro-spinal Meningitis.....		1	1					1	1		1																		1	1													5	
4. Congestion and Hemor'ge of Brain.....		4	1					4	1		2																		1	1													9	
5. Softening of Brain.....		4	1					4	1		2																		1	1													5	
6. Paralysis without specified cause.....		1	1					1	1		1																		1	1													2	
7. Insanity.....		3	1					4	1		2																		1	1													4	
8. Epilepsy.....		13	12					25	1		3																		2	7	2	1	2	4	1	2	1	1	4	4	25			
9. Convulsions (not puerperal).....		2	1					2	1		1																		2	1													3	
10. Other Nervous Diseases.....		37	25					52	10		7																		3	6	11	7	4	2	6	4	8	3	5	3	62			
Total.....																																												
IV. CIRCULATORY SYSTEM.																																												
1. Pericarditis.....																																												
2. Endocarditis.....																																												

WATERLOO.—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	39	40	41	
Number of Column.																																										
IV.—Continued.																																										
3. Organic Heart Diseases.....		9	14	7			4	14	8					1	1			3		1	3	2	5	2	2				5	8												
4. Angina Pectoris.....	1			1					1																				1													
5. Arteries, Atherome, Aneurism etc		5		6	4		2	5	8					1	1									2	4			2	1	1	1	1										
6. Other Dis. of Circulatory System									7					1	1	1	1	3	1	3	4	9	2						2	7	4	1	4	2	2	1	3	1	3			
Total																																										
V. RESPIRATION.																																										
1. Acute Bronchitis.....	5	7	12	3	6		12	6	3		6	3	1	1														4	3	1												
2. Chronic Bronchitis.....	1	1	2				2		3			1									2	1	2	3				2	2	1	1											
3. Broncho pneumonia.....	18	18	18	18	18		7	26	3		2	1	1	1	1	1	1	3	2	2	1	8	6	10	1			3	1	5	6	3	8	1	1	5	1	1				
5. Pleurisy.....	2	1	3				3		1			1																1	1													
6. Congestion of the Lungs.....	7	9	11	5			8	6	2		5	2										1	3	2				1	2	7	2	1	1	1	1	1	1	1				
7. Asthma and Emphysema.....	6		1	4	1		1	5	1																			1	1													
8. Other Dis. of the Respy System	1								1																																	
Total																																										
VI. DIGESTIVE SYSTEM.																																										
1. Ulcer of the Stomach.....	47	38	50	33	2		31	45	9	11	9	3	1		2	2	5	3	2	4	1	7	12	16	6			9	6	18	11	4	10	2	4	3	10	5	3			
2. Other Dis. of Stom. (cancer excp'd)	3	2	1				1	1			1																		1													
3. Infan. Diarr. & Cholera Infantum.	10	6	16				16				3	1																1	1	1	1	1	1	1	1	3	4	1	1			
4. Diarr. & Enteritis (not infantile).								1																																		
5. Dysentery.....		1						1																																		
6. Hernia and Intestinal obstructions	1	2	3				4	1			1				1	2												1	1	1	1	1	1	1	1	1	1	1	1	1		
7. Other Diseases of the Intestines	4	3	3				1	2			1				1	1												1	1	1	1	1	1	1	1	1	1	1	1	1		
8. Diseases of the Liver.....	4	5	8				1	2	1		1				1	2	1	1	1	2	1	1	1	1	1	1																
9. Peritonitis (not puerperal).....	1	2	2					3	2						2	1																										
10. Inac abscess and appendicitis....									3	15	4	2																														
Total																																										
VII. GENITO-URINARY SYS.M.																																										
1. Acute Nephritis.....	4	2	3				1	3	2																																	
2. Bright's Disease.....	5	4	6				3	3	3																																	
3. Other Dis. of Kidneys & Adnexa																																										
4. Vesical Calculi.....																																										
5. Diseases of the Bladder.....																																										
6. Dis. of the male Genital Organs.																																										
7. Metritis.....																																										
8. Other Diseases of the Uterus....																																										
9. Ovarian Cysts & Ovarian Tumors																																										
0. Other Dis. of fem. Genital Organs																																										
Total																																										
VIII PUERPERAL DISEASES.																																										
1. Puerperal Septicæmia.....	9	6	9	6			4	6	5						1	1	1	2	2	1	1	6						2	1	1	2	2	1	1	1	1	1	1	1	1	3	
Total																																										
8																																										

3. Organic Heart Diseases	27	31	21	32	2	3	24	31	4	7	3	1	6	19	13	1	2	2	10	5	4	7	2	1	4	3	7	6	7	58
4. 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
5. Arteries, Atheroma, Aneurism, etc	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
6. Other Dis. of Circulatory System	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
Total	31	34	29	34	2	3	26	36	6	9	3	1	6	22	13	1	2	3	10	7	4	7	3	1	5	7	6	7	65	
V. RESPIRATION.																														
1. Acute Bronchitis	3	3	5	1	5	1	5	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6
2. Chronic Bronchitis	9	9	13	5	5	8	5	5	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18
3. Broncho-pneumonia	2	4	6	6	5	1	5	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6
4. Pneumonia	40	34	38	35	1	13	31	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	74	
5. Pleurisy	2	2	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	4
6. Congestion of the Lungs	6	6	9	3	2	6	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12
7. Asthma and Emphysema	2	2	3	2	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4
8. Other Dis. of the Respy System	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5
Total	66	61	80	46	1	37	48	42	7	4	2	2	4	6	7	3	9	7	16	13	27	13	4	7	5	2	8	10	8	127
VI. DIGESTIVE SYSTEM.																														
1. Ulcer of the Stomach	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	1	1	3
2. Other Dis. of Stom (cancer exp'd)	3	4	5	2	1	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	
3. Infan. Diarr. & Cholera Infantum	12	14	26	10	25	2	2	1	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26	
4. Diarr. & Enteritis (not infantile)	9	6	10	4	1	9	1	5	1	2	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	
5. Dysentery	1	5	1	4	1	1	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	
6. Hernia & Intestinal obstructions.	2	2	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	6	
7. Other Diseases of the Intestines	3	3	3	3	3	3	3	2	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	
8. Diseases of the Liver	6	2	6	2	1	3	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	
9. Peritonitis (not puerperal)	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
10. Iliac abscess and appendicitis	2	4	6	6	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	
Total	39	47	66	17	3	49	15	22	15	3	4	3	2	16	1	4	5	3	2	2	2	2	2	2	2	2	2	2	2	86
VII. GENITO-URINARY SYSTM																														
1. Acute Nephritis	7	3	3	7	1	4	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10
2. Bright's Disease	16	11	15	10	2	12	15	1	3	4	3	3	7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	27
3. Other Dis. of Kidneys & Adnexa.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4. Vesical Calculi	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5. Diseases of the Bladder	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
6. Dis. of the male Genital Organs	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
7. Metritis	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
8. Other Diseases of the Uterus	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
9. Ovarian Cysts & Ovarian Tumors	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
10. Other Dis. of fem. Genital Organs	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total	27	16	19	22	2	19	23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	43
VIII. PUERPERAL DISEASES																														
1. Puerperal Septicæmia	2	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	2
2. Puerl Albuminuria and Convul.	1	1	1	1	1	1	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. Other acc. of Preg., sudden death	1	1	1	1	1	1	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. Puerperal Disease 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
Total	2	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	2

CAUSES OF DEATHS BY COUNTIES IN 1897.—YORK.—POPULATION, 298,268. (Including Municipalities of all classes)

General Diseases.	Number of Column.	Sex.		Natvty.		Soc'l con.		Under 5.					Ages.					Months.												Totals												
		Male.	Female.	Canada.	Foreign.	Single.	Married.	Not sta.	0. 1. 2. 3. 4.					10-14.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45-49.	50-59.	60-69.	70-79.	80 & ov.	Jan.	Feb.	March.	April.		May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.				
									0.	1.	2.	3.	4.																										5-9.	10-14.	15-19.	20-24.
I. COMMUNICABLE DISEASES.		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	39	40	41
1.	Typhoid Fever.....	23	18	24	17	7	6	28	1	2	1	1	2	2	2	6	6	3	9	1	3	4	4	4	4	4	4	4	4	2	3	6	3	6	3	2	3	8	4	6	41	
2.	Smallpox.....	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	3	3	3
3.	Measles.....	57	35	90	2	89	1	2	12	4	10	14	20	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
4.	Scarlet Fever.....	2	3	5	3	4	1	3	15	24	26	53	15	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
5.	Whooping Cough.....	105	82	184	3	176	11	19	15	24	26	53	15	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	
6.	Diphtheria and Croup.....	10	14	13	11	7	10	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	
7.	Influenza.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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.	Other Epidemic Diseases.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Total.....		201	152	319	34	286	17	50	40	21	34	39	40	77	28	7	9	8	3	10	2	5	6	9	10	1	4	35	53	54	50	36	24	19	11	10	20	20	21	353		
II. OTHER GENERAL DIS.		12	18	13	16	1	2	12	16	1	1	1	1	1	1	3	4	2	1	3	1	6	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1.	Pyæmia and Septicæmia.....	270	280	1	424	118	9	188	87	276	90	11	4	3	12	21	44	67	52	38	36	22	34	28	11	4	7	38	54	46	51	54	44	48	37	53	57	36	33	561		
2.	Malarial Fever.....	6	3	6	3	4	5	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
3.	Tuberculosis and Scrofula.....	58	82	57	78	5	51	84	4	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		
4.	Cancer.....	5	4	6	3	4	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		
5.	Syphilis.....	12	7	11	8	3	3	13	1	1	1	1	1	1	1	1	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.	Rheumatism and Gout.....	16	19	14	20	1	12	22	1	1	1	1	1	1	1	1	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.	Diabetes.....	3	3	1	2	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	
8.	Other General Diseases.....	3	3	1	2	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		
9.	Alcoholism, Acute and Chronic.....	382	413	1	532	248	16	207	169	420	94	11	4	6	9	17	25	45	72	77	82	46	52	40	92	85	45	8	12	57	74	67	71	67	71	56	75	76	61	51	796	
Total.....		4	4	7	1	5	2	1	5	7	4	4	5	5	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		
III. NERVOUS SYSTEM.		45	41	80	6	66	7	13	2	6	4	5	5	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.	Encephalitis.....	14	5	17	2	16	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		
2.	Simple Meningitis.....	15	25	14	26	6	14	20	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		
3.	Epidic Cerebro-spinal Meningitis.....	4	6	3	5	2	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	1	1	1	1	1	1		
4.	Congestion and Hemor'ge of Brain.....	41	28	27	40	2	11	56	2	11	56	1	1	1	1	1	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.	Softening of Brain.....	8	11	11	7	1	2	4	13	2	10	6	6	6	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		
6.	Paralysis without specified cause.....	52	52	104	1	103	1	2	4	13	79	11	2	4	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		
7.	Insanity.....	4	5	5	4	2	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		
8.	Epilepsy.....	52	52	104	1	103	1	2	4	13	79	11	2	4	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		
9.	Convulsions (not puerperal).....	4	5	5	4	2	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			
10.	Other Nervous Diseases.....	193	183	275	96	5	202	53	121	125	27	7	12	8	11	6	13	4	7	6	11	10	13	27	39	38	9	3	40	21	42	24	29	33	35	35	32	37	34	376		
Total.....		2	2	2	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			
IV. CIRCULATORY SYSTEM.		6	8	8	4	2	3	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.	Pericarditis.....	2	2	2	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		
2.	Endocarditis.....	4	6	4	2	3	4	1	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		

YORK.—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	39	40	41	
IV.—Continued.																																										
3. Organic Heart Diseases	110	127	...	115	115	7	31	68	138	5	1	2	3	6	4	9	9	3	10	20	14	10	34	48	42	9	2	13	22	28	26	16	15	16	17	15	15	18	237			
4. Angina Pectoris	4	7	...	5	6	...	2	2	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	11	
5. Arteries, Atheroma, Aneurism, etc	40	45	2	26	52	9	4	13	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	87		
6. Other Dis. of Circulatory System	10	11	1	15	5	1	4	13	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	21		
V. RESPIRATION.																																										
1. Acute Bronchitis	31	27	1	53	4	2	52	2	5	34	9	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	374		
2. Chronic Bronchitis	19	24	...	14	27	2	8	10	25	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	59		
3. Broncho-pneumonia	13	13	...	21	4	1	18	3	5	9	5	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	43			
4. Pneumonia	85	113	1	118	78	3	59	59	81	25	13	3	3	5	6	2	9	6	9	4	17	10	14	15	23	24	8	3	22	12	33	23	18	8	6	15	12	17	199			
5. Pleurisy	2	4	...	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	6			
6. Congestion of the Lungs	12	17	...	17	12	...	11	7	11	3	4	...	3	1	...	2	...	4	3	4	...	2	...	3	4	2	3	3	3	3	3	3	3	3	3	3	3	3	3	24		
7. Asthma and Emphysema	12	2	...	4	10	...	1	3	10	1	1	...	1	...	1	...	2	...	3	5	...	2	...	3	5	2	1	1	1	1	1	1	1	1	1	1	1	1	24			
8. Other Dis. of the Respir System	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	14	
VI. DIGESTIVE SYSTEM.																																										
Total	175	202	2	233	138	8	150	88	141	79	31	11	8	6	10	5	10	6	9	10	17	12	19	24	40	50	29	3	44	32	57	51	37	34	20	15	17	19	22	31	379	
1. Ulcer of the Stomach	2	7	...	4	5	...	5	4	...	4	9		
2. Other Uls. of Stom. (cancer exp'd)	11	10	...	12	9	...	3	10	8	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
3. Infan. I diarr. & Cholera Infantum	100	95	...	195	...	...	195	...	...	180	14	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	196
4. Diarr. & Enteritis (not infantile)	5	6	...	12	9	...	7	8	6	6	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
5. Dysentery	6	6	...	5	6	...	2	7	2	2	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
6. Hernia and Intestinal obstructions	8	6	...	9	5	...	4	5	5	4	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
7. Other Diseases of the Intestines	22	7	...	17	11	...	10	3	16	4	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29
8. Diseases of the Liver	13	14	...	15	10	...	4	8	15	3	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
9. Peritonitis (not puerperal)	15	40	...	38	13	...	13	19	23	3	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	55
10. Iliac abscess and appendicitis	14	12	...	20	6	...	12	5	9	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
VII. GENITO-URINARY SYST.																																										
Total	198	210	...	327	74	7	250	65	93	198	17	5	1	4	6	17	8	25	11	14	9	14	25	28	15	15	9	1	18	15	21	15	18	9	46	84	81	15	22	408		
1. Acute Nephritis	28	16	...	18	25	1	8	9	27	3	1	...	1	2	1	1	3	1	3	1	2	6	7	5	1	1	5	5	2	2	5	3	5	4	2	7	2	44				
2. Bright's Disease	15	17	...	15	14	3	1	5	26	32		
3. Other Dis. of Kidneys & Adnexa.	12	14	...	9	16	1	2	4	20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
4. Vesical Calculi	4	3	...	4	3	...	3	3	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
5. Diseases of the Bladder	5	3	...	4	3	1	1	2	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
6. Dis. of the male Genital Organs.	4	...	...	4	...	...	1	2	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
7. Metritis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
8. Other Diseases of the Uterus	6		
9. Ovarian Cysts & Ovarian Tumors	1		
10. Other Dis. of fem Genital Organs	1	
VIII. PUERPERAL DISEASES.																																										
Total	68	63	...	59	65	7	12	25	94	3	1	...	1	2	3	5	8	9	7	10	21	20	22	6	2	16	12	8	15	12	8	13	13	9	5	13	7	131	
1. Puerperal Septicaemia	17

CAUSES OF DEATHS BY CITIES IN 1897. —TORONTO. —POPULATION, 197,938.

General Diseases.	Sex.		Natvty.		Soc'l con.		Age.												Months.												Totals																																	
	Male	Female	Canada	Foreign	Not sta	Single	Married	Under 5.				5-9.				10-14.				15-19.				20-24.				25-29.				30-34.				35-39.				40-44.				45-49.				50-59.				60-69.				70-79.				80 & ov.				
								0-1.	1.	2.	3.	4.	5-9.	10-14.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45-49.	50-59.	60-69.	70-79.	80 & ov.	Jan.	Feb.	Mar.	April.	May.		June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.																										
I. COMMUNICABLE DISEASES.	1	2	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	40	41																								
1. Typhoid Fever.....	20	16	20	16	..	6	4	26	..	1	..	..	2	2	..	5	6	3	7	1	2	4	3	..	..	..	3	2	1	6	..	2	2	3	8	4	5	36																					
2. Smallpox.....	2																								
3. Measles.....	45	30	73	2	..	2	8	3	9	11	18	9	1	75																								
4. Scarlet Fever.....	1	3	4	3	3	4																								
5. Whooping Cough.....	92	69	158	3	..	15	..	10	18	11	22	21	24	47	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	161			
6. Diphtheria and Croup.....	6	7	6	7	..	4	3	6	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
7. Influenza.....	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
8. Other Epidemic Diseases.....	167	125	293	29	..	239	7	46	33	16	31	33	35	67	22	3	8	8	3	8	1	3	5	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	292											
Total.....	12	17	12	16	1	2	11	16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29
I. OTHER GENERAL DISES.	225	238	1	356	99	9	163	56	245	90	10	3	4	3	10	16	37	54	63	45	32	25	17	28	18	9	3	7	35	45	43	88	39	40	43	29	51	40	28	464																								
1. Pyæmia and Septicæmia.....	5	3	6	2	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
2. Malarial Fever.....	44	70	42	67	5	2	36	76	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	114
3. Tuberculosis and Scrofula.....	2	3	2	3	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
4. Syphilis.....	8	5	7	6	..	2	1	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
5. Cancer.....	10	18	11	16	1	1	8	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28
6. Rheumatism and Gout.....	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
7. Diabetes.....	308	354	1	437	210	16	175	115	373	94	10	3	6	3	11	19	38	58	66	54	37	39	33	30	57	37	7	11	49	67	49	51	59	61	45	66	65	49	663																									
8. Other General Diseases.....	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Total.....	1	1																								
Local Diseases	42	37	74	5	..	63	5	12	79																								
1. Encephalitis.....	9	3	10	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
2. Simple Meningitis.....	7	17	9	15	..	5	7	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
3. Epid. Cerebro-spinal Meningitis.....	3	5	1	5	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
4. Congestion & Hemor'ge of Brain.....	39	26	24	39	2	2	9	54	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	65
5. Softening of the Brain.....	5	3	4	4	..	1	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
6. Paralysis without specified cause.....	8	10	8	7	1	2	3	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16
7. Insanity.....	45	47	92	8	..	92	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	92
8. Epilepsy.....	2	5	4	3	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
9. Convulsions (not puerperal).....	169	153	227	80	5	175	27	110	105	23	7	10	7	11	6	13	4	3	9	8	9	10	23	26	23	7	3	36	18	37	21	27	20	29	27	14	27	29	312																									
10. Other Nervous Diseases.....	2	2	2	1	1	1	1	2	4																								
Total.....	6	8	8	4	2	3	4	7	14																								
IV. CIRCULATORY SYSTEM.	1																								
1. Pericarditis.....																								
2. Endocarditis.....																								

3. Organic Heart Diseases	88	103	7	27	48	123	5	2	3	6	4	5	7	2	10	10	15	28	83	36	9	1	9	20	24	19	23	13	12	19	17	14	11	17	198	
4. Angina Pectoris	3	5	6	..	4	7	2	1	1	1	1	1	1	1	1	1	1	1	11	
5. Arteries, Atheroma, Aneurysm &c.	2	5	2	9	9	3	1	6	11	5	5	9	11	6	8	6	8	9	3	87	
6. Other Dis. of Corona .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
Total	139	180	2	182	169	20	34	82	205	8	2	3	8	9	9	8	4	14	23	18	33	48	61	62	16	5	10	32	32	19	29	24	25	22	21	321
V. RESPIRATION.																																				
1. Acute Bronchitis	28	20	1	44	3	2	43	1	5	26	9	6	1	1	6	4	6	9	4	5	3	2	2	1	5	2	49
2. Chronic Bronchitis	16	19	12	21	2	7	5	23	4	4	2	1	2	5	6	4	5	4	1	1	2	2	3	35	
3. Broncho-pneumonia	10	9	15	4	12	2	5	4	3	5	4	2	3	..	..	..	..	..	..	..	..	..	..	3	4	3	2	2	3	1	1	1	1	19
4. Pneumonia	69	82	1	88	61	3	46	33	75	22	10	3	2	4	7	5	8	3	10	8	14	11	18	17	3	15	8	24	23	10	11	8	6	5	10	182
5. Pleurisy	2	3	2	3	2	3	2	3	2	1	1	1	1	1	1	1	1	1	1	5	
6. Congestion of the Lungs	8	8	5	11	2	4	10	2	2	1	1	2	2	1	1	1	1	1	1	16	
7. Asthma and Emphysema	8	2	2	8	..	..	1	1	8	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	2	2	..	..	..	..	..	10
8. Other Dis. of the Resp'y System	1	2	..	3	..	..	1	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	1	2	..	..	..	..	..	..	3
Total	142	145	2	171	111	7	112	50	127	62	23	11	7	5	5	1	7	5	8	7	10	10	16	17	30	38	24	3	3	2	4	1	18	25	289	
VI. DIGESTIVE SYSTEM.																																				
1. Ulcer of the Stomach	1	6	3	4	..	..	3	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
2. Other Dis. of Stom. (cancer, exp'd)	7	6	5	8	..	..	5	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
3. Infant. Diar. & Cholera Infantum	87	85	172	..	..	..	172	..	..	161	10	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	172
4. Diarr. & Enteritis (not Infantile).	6	9	9	6	..	..	6	3	6	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
5. Dysentery	5	5	5	2	1	7	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
6. Hernia and Intestinal obstructions	12	5	9	7	1	6	..	11	3	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17
7. Other Diseases of the Intestines.	11	11	12	9	1	4	4	14	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29
8. Diseases of the Liver	9	33	28	10	4	7	16	19	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	42
9. Peritonitis (not puerperal)	13	11	18	6	..	..	11	5	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
10. Itiac abscess and appendicitis	156	176	266	40	210	40	82	179	12	2	1	3	6	10	5	22	8	10	11	8	18	19	12	6	..	..	..	..	..	..	..	..	..	332
Total	27	14	16	24	1	8	6	27	3	1	1	2	1	1	3	2	1	2	6	5	7	5	1	..	..	..	..	..	..	..	..	..	..	41
VII. GENITO-URINARY SYSTEM																																				
1. Acute Nephritis	15	10	12	10	3	1	2	22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26
2. Bright's Disease	12	14	9	16	1	2	4	20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25
3. Other Dis. of Kidneys & Adnexa	4	3	4	3	..	..	3	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
4. Vesical Calculi	4	3	3	3	1	..	2	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
5. Diseases of the Bladder	4	3	3	3	1	..	2	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
6. Dis. of the male Genital Organs.	1	5	5	1	..	..	1	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
7. Merritis	1	2	2	2	1	1	
8. Other Diseases of the Uterus	1	5	5	1	..	..	1	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9. Ovarian Cysts & Ovarian Tumors	2	2	2	2	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10. Other Dis. of fem. Genital Organs	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	67	52	..	61	6	11	19	89	3	1	..	1	2	1	3	5	7	6	9	10	19	20	17	6	3	..	..	..	..	..	..	..	..	119
VIII. PUERPERAL DISEASES.																																				
1. Puerperal Septicæmia	4	8	3	9	2	11	
2. Puerp'l Albuminuria and Convul	..	4	3	1	1	2	1	4	
3. Other acc. of Preg., sudden death	..	18	14	4	..	..	10	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
4. Puerperal Disease of the Breast.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total .....	..	33	..	25	8	..	1	21	11	..	..	..	..	..	1	2	10	5	4	7	1	2	1	..	..	..	..	..	..	..	..	..	..	33

CITY OF 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	39	40	41			
IX. THE SKIN.																																												
1. Erysipelas.....																																												
2. Skin and Adnexa (cancer except'd)	4	3		6	1	3	4			2						1							3	1																				
X. LOCOMOTOR SYSTEM. Total																																												
1. Pott's Disease.....							1	2	1																																			
2. Diseases of Bones and Joints.....	4	4																																										
3. Amputation (for unspecified Dis.)				2	2																																							
Total.....																																												
XI. MALFORMATIONS, ETC.																																												
1. Still-Births.....	44	36		80			80			80																																		
2. Congen. Debil. & Malformations.	34	38		72			72			72																																		
3. Other Diseases of Infancy.....	42	31		73			73			70	3																																	
4. Senile Decay.....	30	24		21	28	5	9	45																			27	27																
Total.....																																												
XII. SUICIDE.																																												
1. Poison.....	1	1		1			1																																					
2. Strangulation.....	1	1		1			1																																					
3. Gas Poisoning.....																																												
4. Drowning.....																																												
5. Firearms.....																																												
Total.....																																												
XIII. ACCIDENTS.																																												
1. Fractures and Dislocations.....	6	10		10	4	2	7	1	8	2																																		
2. Gunshot.....	1			1			1																																					
3. Lightning.....				5	1		4		2																																			
4. Drowning.....																																												
5. Electric Cars.....																																												
6. Bicycles.....																																												
7. Railways.....	12			10		2	2	10																																				
8. Burns and Scalds.....	5	4		9			6	1	2																																			
9. Homicide.....																																												
10. Accidental Poisoning.....																																												
Total.....																																												
XIV. ILL-DEFINED CAUSES.																																												
1. Droopy.....		4		3	1		1		3																																			
2. Tumors.....	1	3		3	1		2		2																																			
3. Other Ill-Defined Causes.....	3	1		4			3		1																																			
Total.....																																												
Total from all causes.....																																												
	654	588		1,057	162	23	789	100	354	529	55	22	23	13	30	20	47	48	35	36	36	23	36	66	80	76	48	2	91	139	95	105	95	94	156	131	97	80	78	1,242				

CAUSES OF DEATHS BY CITIES IN 1897.—LONDON.—POPULATION, 32,944.

General Diseases.	Sex.		Nativity.		Soc. con.		Ages.										Months.												Totals.						
	Male.	Female.	Canada.	Foreign.	Single.	Married.	Under 5.					Ages.					Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.							
							0-1.	1-2.	2-3.	3-4.	5-9.	10-14.	15-19.	20-24.	25-29.	30-34.														35-39.	40-44.	45-49.	50-59.	60-69.	70-79.	80 & ov.
Number of Column.																																			
I. COMMUNICABLE DISEASES																																			
1. Typhoid Fever	2	6	7	1	4	3																													
2. Smallpox	2		2		2																														
3. Measles	1	2	3		3																														
4. Scarlet Fever	2	5	7		7																														
5. Whooping Cough	8	12	20		20																														
6. Diphtheria and Croup	2	3	3		3																														
7. Influenza			3		3																														
8. Other Epidemic Diseases																																			
Total	15	30	42	3	36	4	5	6	5	2	3	2	14	3	1	2	3	1																	
II. OTHER GENERAL DISEASES																																			
1. Pyæmia and Septicæmia	3	3	3	3	2	4																													
2. Malarial Fever	24	28	36	16	15	13	24	3	1	1	3	4	3	11	4	7	8	2	3	1	1														
3. Tuberculosis and Scrofula	6	11	7	10	1	8																													
4. Syphilis	2	1	3		1	2																													
5. Cancer	4	1	4	1	1	4																													
6. Rheumatism and Gout																																			
7. Diabetes																																			
8. Other General Diseases																																			
9. Alcoholism, Acute and Chronic																																			
Total	89	44	50	83	17	24	42	3	1	1	3	4	14	8	7	9	4	10	5	7	3														
Local Diseases.																																			
III. NERVOUS SYSTEM.																																			
1. Encephalitis	4	2	5	1	6																														
2. Simple Meningitis	8	8	15	1	14																														
3. Epid'c. Cerebro-spinal Meningitis	5	9	3	11	1	2	11	1	2	1	2	4	1	1	1	1	1	3	3	4	1														
4. Congestion & Hæmorrhage of Brain.	2	4	3	3	2	2	2																												
5. Softening of Brain	2	1	2	1	2																														
6. Paralysis without specified cause.	2	1	2	1	1	2																													
7. Insanity	3	1	4	2	4																														
8. Epilepsy	1	1	1	1	1																														
9. Convulsions (not puerperal)	25	27	33	19	28	6	18	10	3	1	3	1	2	4	2	1	2	1	5	5	7	2													
10. Other Nervous Diseases	2	1	2	1	1																														
Total	83	44	50	83	17	24	42	3	1	1	3	4	14	8	7	9	4	10	5	7	3														
IV. CIRCULATORY SYSTEM.																																			
1. Pericarditis																																			
2. Endocarditis																																			

LONDON.—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	39	40	41		
IV.—Continued.																																											
3. Organic Heart Diseases	14	19		10	23		3	13	17									2	3	2			1	5	14	4	2																
4. Angina Pectoris	1			1																																							
5. Arteries, Atheroma, Aneurism, etc	1	3		1	3		2	2																																			
6. Other Dis. of Circulatory System	18	23		14	27		4	15	22																																		
V. RESPIRATORY.																																											
1. Acute Bronchitis	5	7		10	2		11	1		8																																	
2. Chronic Bronchitis	2	5		7			3	4																																			
3. Broncho-pneumonia	2	1		1			1																																				
4. Pneumonia	18	12		17	12		9	6	15	5																																	
5. Pleurisy	2	2		2			1																																				
6. Congestion of the Lungs	3	4		5	2		4	1	2	3																																	
7. Asthma and Emphysema.	1	3					1	2	1																																		
8. Other Dis. of Respiratory System	29	35		39	24		27	15	22	16																																	
VI. DIGESTIVE SYSTEM.																																											
1. Ulcer of the Stomach				1																																							
2. Other Dis. of Stomach (cancer exceptd)				1																																							
3. Infan. Diarrh. & Cholera Infant in	13	9		22			22			21																																	
4. Diarrh. & Enteritis (not infantile)	3	2		3			1	2	2																																		
5. Dysentery				1																																							
6. Hernia and Intestinal obstructions				4																																							
7. Other Diseases of the Intestines	3	1		4			1	3																																			
8. Diseases of the Liver	5	4		3	6		4	5																																			
9. Peritonitis (not puerperal)	3	5		6	2		2	4	2	1																																	
10. Iliaic abscess and appendicitis				2			1																																				
VII. GENITO-URINARY SYSTEM.																																											
1. Acute Nephritis	3	1		2																																							
2. Bright's Disease	12	5		9	8		2	3	12																																		
3. Other Dis. of Kidneys & Adnexa.																																											
4. Vesical Calculi																																											
5. Diseases of the Bladder	1			1																																							
6. Dis. of the male Genital Organs.																																											
7. Metritis																																											
8. Other Diseases of the Uterus																																											
9. Ovarian Cysts & Ovarian Tumors																																											
10. Other Dis. of fem. Genital Organs																																											
VIII. PUERPERAL DISEASES.																																											
1. Puerperal Septicæmia	16	6		11	11		2	3	17																																		
Total	1			1			1																																				

CAUSES OF DEATHS BY CITIES IN 1897.—CITY OF BRANTFORD.—POPULATION 13,547.

General Diseases.	Sex.		Nativity.		Soc'l. con.		Age.										Months.												Totals.																																																				
	Male.	Female.	Canada.	Foreign.	Not sta.	Single.	Married.	Not sta.	Under 5.					5-9.					10-14.					15-19.						20-24.					25-29.					30-34.					35-39.					40-44.					45-49.					50-59.					60-69.					70-79.					80 & ov.					Nov.	Dec.
									0.	1.	2.	3.	4.	5-9.	10-14.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45-49.	50-59.	60-69.	70-79.	80 & ov.	Janu.	Febr.		March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.																																										
I. COMMUNICABLE DISEASES.																																																																																	
Number of Column.																																																																																	
1.	Typhoid Fever.....																																																																																
2.	Smallpox.....																																																																																
3.	Measles.....																																																																																
4.	Scarlet Fever.....																																																																																
5.	Whooping Cough.....																																																																																
6.	Diphtheria and Croup.....																																																																																
7.	Influenza.....																																																																																
8.	Other Epidemic Diseases.....																																																																																
Total.....																																																																																	
II. OTHER GENERAL DISS.																																																																																	
1.	Pyæmia and Septicæmia.....																																																																																
2.	Malarial Fever.....																																																																																
3.	Tuberculosis and Scrofula.....																																																																																
4.	Syphilis.....																																																																																
5.	Cancer.....																																																																																
6.	Rheumatism and Gout.....																																																																																
7.	Diabetes.....																																																																																
8.	Other General Diseases.....																																																																																
9.	Alcoholism, Acute and Chronic.....																																																																																
Total.....																																																																																	
Local Diseases.																																																																																	
III. NERVOUS SYSTEM.																																																																																	
1.	Ecephalitis.....																																																																																
2.	Simple Meningitis.....																																																																																
3.	Epidic Cerebro-spinal Meningitis.....																																																																																
4.	Congestion and Hemor'ge of Brain.....																																																																																
5.	Softening of Brain.....																																																																																
6.	Paralysis without specified cause.....																																																																																
7.	Insanity.....																																																																																
8.	Epilepsy.....																																																																																
9.	Convulsions (not puerperal).....																																																																																
10.	Other Nervous Diseases.....																																																																																
Total.....																																																																																	
IV. CIRCULATORY SYSTEM.																																																																																	
1.	Pericarditis.....																																																																																
2.	Endocarditis.....																																																																																

CITY OF ST. THOMAS.—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	39	40	41	
IX. THE SKIN.																																										
1. Erysipelas																																										
2. Skin and Adnexa (Cancer except'd)																																										
X. LOCOMOTOR SYST'M. Total																																										
1. Pott's Disease																																										
2. Diseases of Bones and Joints																																										
3. Amputation (for unspecified Dis.)																																										
Total																																										
XI. MALFORMATIONS, ETC.																																										
1. Still Births	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	2	2	2	2	2	2	2
2. Congen. Debil. and Malformations	6	3	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	9	
3. Other Diseases of Infancy	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	2	2	2	2	2		
4. Semile Decay	9	6	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	
Total																																										
XII. SUICIDE.																																										
1. Poison	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Strangulation																																										
3. Gas Poisoning																																										
4. Drowning																																										
5. Firearms																																										
Total																																										
XIII. ACCIDENTS.																																										
1. Fracture and Dislocations	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
2. Gunshot																																										
3. Lightning																																										
4. Drowning																																										
5. Electric Cars																																										
6. Bicycles																																										
7. Railways																																										
8. Burns and Scalds																																										
9. Homicide																																										
10. Accidental Poisoning																																										
Total																																										
XIV. ILL-DEFINED CAUSES.																																										
1. Dropsy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Tumors	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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. Other Ill-Defined Causes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Total																																										
Total from all causes																																										
	84	73	93	59	3	57	29	71	23	3	4	5	2	10	1	5	4	6	4	7	15	16	20	12	1	21	14	18	15	14	10	11	18	11	8	7	10	157				

CITY OF BELLEVILLE.—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	39	40	41	
IV.—Continued.																																										
3. Organic Heart Diseases	7	4		8	3		2	4	5								1	1								4	4	1		4	1		2					8	1	11		
4. Angina Pectoris	1			1					1																																1	
5. Arteries, Atheroma, Aneurism, etc																																										1
6. Other Dis. of Circulatory System.	1			1					1																																	1
Total	9	4		10	3		2	4	7								1	3								4	4	1		4	1		2					8	1	13		
V. RESPIRATION.																																										
1. Acute Bronchitis		2		2			2			1	1																															2
2. Chronic Bronchitis	3			2	1		1		2																																	3
3. Broncho-pneumonia	1			1			1			1																															1	
4. Pneumonia	11	6		14	3		5	3	9	3							1	1	1	1	2	3	2	2		1	4	4												17		
5. Pleurisy																																								2		
6. Congestion of the Lungs	2			2					2																															2		
7. Asthma and Emphysema	1			1					1																															1		
8. Other Dis. of Respiratory System																																								1		
Total	17	9		22	4		9	4	13	6	1					1	1	1	1	1	1	3	3	4	4		1	3	4	4		1	3	4	4	1	1	1	2	6	26	
VI. DIGESTIVE SYSTEM.																																										
1. Ulcer of the Stomach																																										
2. Other Dis. of Stom. (cancer except'd)																																										
3. Infan. Diar. & Cholera Infantum.	6	5		11			11			10	1																														11	
4. Diarr. & Enteritis (not infantile)	2			1			1		1																															2		
5. Dysentery																																								1		
6. Hernia and Intestinal obstructions	1			1			1		1																															1		
7. Other Diseases of the Intestines	2			1			1		1																															1		
8. Diseases of the Liver	2			1			1		2																															2		
9. Peritonitis (not puerperal)	1			1			1		1																														1			
10. Iliac abscess and appendicitis	6			6			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	6		
Total	16	8		21	3		16	2	6	11	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	24	
VII. GENITO-URINARY SYS'M.																																										
1. Acute Nephritis	3	1		3	1		1	1	2																																4	
2. Bright's Disease	1			1					1																															1		
3. Other Dis. of Kidneys & Adnexa.	4			3	1		1	2	1																															4		
4. Vesical Calculi																																										
5. Diseases of the Bladder																																										
6. Dis. of the male Genital Organs.																																										
7. Metritis																																										
8. Other Diseases of the Uterus																																										
9. Ovarian Cysts & Ovarian Tumors																																										
10. Other Dis. of fem. Genital Organs																																										
Total	4	6		6	8		2	3	4							2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9		
VIII. PUERPERAL DISEASES.																																										
Puerperal Septicæmia	1			1																																					1	

CITY OF CHATHAM.—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	39	40	41									
IX. THE SKIN.																																																		
1. Erysipelas	1			1				1													1																	1												
2. Skin and Adnexa (Cancer except'd)																																																		
X. LOCOMOTOR SYSTM. Total	1			1				1																																										
1. Pott's Disease																																																		
2. Diseases of Bones and Joints																																																		
3. Amputation (for unspecified Dis.)																																																		
XI. MALFORMATIONS, ETC.																																																		
1. Still Births	4	5	9	9						9		9																																						
2. Congen. Debil. & Malformations	3	7	10	10						10		10																																						
3. Other Diseases of Infancy	4	3	7	7				2	6																																									
4. Senile Decay																																																		
Total	11	15	19	7	19	7	19	2	5	19																																								
XII. SUICIDE. Total																																																		
1. Poison																																																		
2. Strangulation																																																		
3. Gas Poisoning																																																		
4. Drowning																																																		
5. Firearms																																																		
XIII. ACCIDENTS. Total																																																		
1. Fractures and Dislocations	6			5	1		1	6		1		1								1	2																													
2. Gunshot																																																		
3. Lightning																																																		
4. Drowning	2			1	1		1	1																																										
5. Electric Cars																																																		
6. Bicycles																																																		
7. Railways	1			1																																														
8. Burns and Scalds																																																		
9. Homicide																																																		
10. Accidental Poisoning																																																		
Total	9		7	2		2	7			1	1	1	1	1	1	1	1	1	2	2																														
XIV. ILL-DEFINED CAUSES.																																																		
1. Dropsy	2	1		2	1			3																																										
2. Tumors																																																		
3. Other Ill-Defined Causes																																																		
Total	2	1		2	1			3																																										
Total from all causes	88	73	106	54	44	44	18	99	32	6	4	4	4	5	5	8	7	5	7	7	3	7	7	7	21	30	10	11	16	12	18	9	11	12	9	11	13	31	35	36	37	38	39	40	41					

CAUSES OF DEATHS BY TOWNS IN 1897.—BERLIN.—POPULATION 7,887.

General Diseases.	Number of Column.	Sex.		Natvty.		Soc'l. con.		Age.												Totals.																						
		Male.	Female.	Not sta.	Canada	Foreign	Not sta.	Single	Married	Not sta.	Under 5.					Ages.																										
											0-1.	1-2.	3.	4.	5-9.	10-14.	15-19.	20-24.	25-29.		30-34.	35-39.	40-44.	45-49.	50-54.	55-59.	60-64.	65-69.	70-74.	75-79.	80 & ov.											
		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	39	40	41
I. COMMUNICABLE DISEASES.																																										
1.	Typhoid Fever																																									
2.	Smallpox																																									
3.	Measles																																									
4.	Scarlet Fever																																									
5.	Whooping Cough																																									
6.	Diphtheria and Croup																																									
7.	Influenza																																									
8.	Other Epidemic Diseases																																									
11	Total																																									
II. OTHER GENERAL DISES.																																										
1.	Pyæmia and Septicæmia																																									
2.	Malarial Fever																																									
3.	Tuberculosis and Scrofula																																									
4.	Syphilis																																									
5.	Cancer																																									
6.	Rheumatism and Gout																																									
7.	Diabetes																																									
8.	Other General Diseases																																									
9.	Alcoholism, Acute and Chronic																																									
7	Total																																									
Local Diseases.																																										
III. NERVOUS SYSTEM.																																										
1.	Encephalitis																																									
2.	Simple Meningitis																																									
3.	Epidic Cerebro-spinal Meningitis																																									
4.	Congestion and Hern'ge of Brain																																									
5.	Softening of Brain																																									
6.	Paralysis without specified cause.																																									
7.	Insanity																																									
8.	Epilepsy																																									
9.	Convulsions (not puerperal)																																									
10.	Other Nervous Diseases																																									
10	Total																																									
IV. CIRCULATORY SYSTEM.																																										
1.	Percarditis																																									
2.	Endocarditis																																									

LINDSAY.—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	39	40	41				
IX. THE SKIN.																																													
1. Erysipelas	1			1			1																																						
2. Skin and Adnexa (Cancer except'd)																																													
X. LOCOMOTOR SYSTEM. Total																																													
1. Pott's Disease																																													
2. Diseases of Bones and Joints																																													
3. Amputation (for unspecified Dis.)																																													
XI. MALFORMATIONS, ETC. Total																																													
1. Still-Births	3	1		4		4																																							
2. Congen. Debil. and Malformations	2	2		4		4																																							
3. Other Diseases of Infancy	3	1		1	3																																								
4. Senile Decay	8	4		9	3		8	4																																					
XII. SUICIDE, Total																																													
1. Poison																																													
2. Strangulation																																													
3. Gas Poisoning																																													
4. Drowning																																													
5. Firearms																																													
XIII. ACCIDENT. Total																																													
1. Fractures and Dislocations	1			1																																									
2. Gunshot																																													
3. Lightning																																													
4. Drowning																																													
5. Electric Cars																																													
6. Bicycles																																													
7. Railways																																													
8. Burns and Scalds																																													
9. Homicide																																													
10. Accidental Poisoning																																													
XIV. ILL-DEFINED CAUSES. Total																																													
1. Dropsy																																													
2. Tumors																																													
3. Other Ill-Defined Causes																																													
Total	1	2		2	1			3																																					
Total from all causes.....	42	36		59	19		29	43		24		1		1		2	2	6	5	1	4	2	8	7	4	4	2	4	5	5	10	7	9	6	7	5	6	6	9	6	7	8			

CAUSES OF DEATHS BY TOWNS IN 1897.—NIAGARA FALLS.—POPULATION 3,551.

General Diseases.	Number of Column.	Sex.		Natvty.		Soc'l. con.		Ages.										Months.										Totals.																																										
		Male.	Female.	Canada.	Foreign.	Not sta.	Single.	Marrie.	Not sta.	Under 5.					15-19.					20-24.					25-29.					30-34.					35-39.					40-44.					45-49.					50-59.					60-69.					70-79.					80 & ov.					
										0.	1.	2.	3.	4.	5-9.	10-14.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45-49.	50-59.	60-69.	70-79.	80 & ov.		Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.																												
I. COMMUNICABLE DISEASES.																																																																						
1. Typhoid fever.....		1	2	8	9	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	40	41																														
2. Smallpox.....		1			1	1																																		1																														
3. Measles.....																																																																						
4. Scarlet Fever.....																																																																						
5. Whooping Cough.....																																																																						
6. Diphtheria and Croup.....																																																																						
7. Influenza.....																																																																						
8. Other Epidemic Diseases.....																																																																						
II. OTHER GENERAL DISES.																																																																						
1. Pyaemia and Septicæmia.....		1			1	1																																			1																													
2. Malarial Fever.....																																																																						
3. Tuberculosis and Scrofula.....		3	3		4	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	1	1	2									6																													
4. Syphilis.....		2			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	2																													
5. Cancer.....		1			1	1	1	1	1	1	1	1	1	1	1	1	1	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. Rheumatism and Gout.....		1			1	1	1	1	1	1	1	1	1	1	1	1	1	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. Diabetes.....		1			1	1	1	1	1	1	1	1	1	1	1	1	1	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. Other General Diseases.....																																																																						
9. Alcoholism, Acute and Chronic.....																																																																						
Total.....		5	5	6	4	1	7	2	2	2	1	1	4	1	1	1	4	1	2	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	2	2	2	2	10																														
Local Diseases.																																																																						
III. NERVOUS SYSTEM.																																																																						
1. Encephalitis.....																																																																						
2. Simple Meningitis.....																																																																						
3. Epidic Cerebro-spinal Meningitis.....		1	1			2	1																																																															
4. Congestion and Hemor'ge of Brain.....		1																																																																				
5. Softening of the Brain.....																																																																						
6. Paralysis without specified cause.....		2						2																																																														
7. Insanity.....																																																																						
8. Epilepsy.....																																																																						
9. Convulsions (not puerperal).....		1	1			2																																																																
10. Other Nervous Diseases.....		1				1	1																																																															
Total.....		6	2	7	1	4	2	2	4																															8																														
IV. CIRCULATORY SYSTEM.																																																																						
1. Pericarditis.....																																																																						
2. Endocarditis.....																																																																						

RAT PORTAGE.—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	39	40	41				
IX. THE SKIN.																																													
1. Erysipelas																																													
2. Skin and Adnexa (cancer excepted)																																													
X. LOCOMOTOR SYSTM. Total																																													
XI. MALFORMATIONS, ETC.																																													
1. Still-Births	1	1		2			2					2																														2			
2. Congen. Debil. & Malformations.	3	5		8			8					8																														1			
3. Other Diseases of Infancy							2																																				2		
4. Senile Decay				1	1																																						2		
XII. SUICIDE. Total	4	8		11	1		10	2				10																															2		12
XIII. ACCIDENTS. Total																																													
1. Poison																																													
2. Strangulation																																													
3. Gas Poisoning																																													
4. Drowning																																													
5. Firearms																																													
XIV. UNDEFINED CAUSES. Total																																													
1. Fractures and Dislocations	2			2					2																																				
2. Gunshot																																													
3. Lightning																																													
4. Dr. waving	4	1		1			1	3																																					
5. Electric Cars																																													
6. Bicycles																																													
7. Railways																																													
8. Burns and Scalds																																													
9. Homicide																																													
10. Accidental Poisoning																																													
XIV. UNDEFINED CAUSES. Total	8	1		8	1		1	7																																					
1. Dropsy	1			1																																									
2. Tumors																																													
3. Other Ill-Defined Causes	1	1		2				2																																					
Total	2	1		3				3																																					
Total from all causes	64	38		97	5		56	18	28	24	13	4	3	2	3	7	3	4	2	1	1	1	1	2	4	7	3	7	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	102	

CCXVIII.

TORONTO JUNCTION.—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	39	40	41									
Number of Column.																																																		
IX. THE SKIN.																																																		
1. Erysipelas																																																		
2. Skin and Adnexa (cancer except'd)																																																		
X. LOCOMOTOR SYSTM. Total																																																		
1. Pott's Disease																																																		
2. Diseases of Bones and Joints																																																		
3. Amputation (for unspecified Dis.)																																																		
XI. MALFORMATIONS. Total																																																		
1. Still Births	3			3			3																																											
2. Congen. Debil. & Malformations.	4	7		11			11																																											
3. Other Diseases of Infancy	6	3		9			9																																											
4. Senile Decay																																																		
XII. SUICIDE. Total																																																		
1. Poison	13	10		14			14																																											
2. Strangulation																																																		
3. Gas Poisoning																																																		
4. Drowning																																																		
5. Firearms																																																		
XIII. ACCIDENTS. Total																																																		
1. Fractures and Dislocations	1			1			1																																											
2. Gunshot																																																		
3. Lightning																																																		
4. Drowning																																																		
5. Electric Cars																																																		
6. Bicycles																																																		
7. Railways																																																		
8. Burns and Scalds																																																		
9. Homicide																																																		
10. Accidental Poisoning																																																		
XIV. ILL-DEFINED CAUSES. Total																																																		
1. Dropsy																																																		
2. Tumors																																																		
3. Other Ill-Defined Causes																																																		
Total from all causes.....																																																		
	41	38	53	16	36	24	9	20	4	1	2	1	3	1	4	1	4	2	5	2	5	1	4	4	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

REPORT
OF THE
ONTARIO
GAME AND FISH COMMISSIONERS
FOR THE YEAR
1898.

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO.



TORONTO:

WARWICK BRO'S & RUTTER, PRINTERS AND BOOKBINDERS, 63 AND 70 FRONT ST. WEST
1899

REPORT

OF THE

ONTARIO GAME AND FISH COMMISSIONERS.

His Honor the Lieutenant-Governor of Ontario :

SIR.—Your Commissioners beg herewith to present the seventh annual report of the work done during the year in the Department entrusted with the protection, propagation and preservation of the game and fish of the Province.

Besides the report of the Commissioners we also herewith give the reports of the Chief Warden and Wardens who are appointed to see that the law is enforced. We are pleased to find that they have to the best of their ability been earnest and faithful in the discharge of their duty, and have succeeded in doing a great deal of good work.

During the year we have found that some changes in the law are being proposed by sportsmen and others, and there are a few changes which we your Commissioners feel should take place. These we will place before your Government leaving it to them who are the representatives of the people to decide whether they shall be incorporated in the law. Many of these changes have been urged by us before as being absolutely necessary before we can say that our Game laws are near perfection. It is true, nevertheless, that we have perhaps the most advanced Game laws on the Continent, and it is interesting and very pleasing to know that other adjoining States are evidently vying with us as to which shall be most advanced. In order to keep abreast of the improved opinion of the public and to keep pace with other States, we must ask the Government to meet our views in what we recommend. To give some idea of the trend of thought in these matters, we would like to draw attention to the proceedings of a very important representative meeting which took place in Chicago on December 12th, 1898. It was the meeting of the Committee chosen last February by the proper authorities of the States of North Dakota, Minnesota, Wisconsin, Michigan and Illinois. This Committee was to report on a uniform set of game laws for the above States. It represented the best talent and thought in these matters in these several States, and evidently the best points in outside laws were considered and adopted and every effort will be put forth to have them made the law. Among the most noteworthy advances towards game preservation adopted were the abolition of Spring Shooting, the adoption of a license law for the killing of all game and fish, the provision that all game and fish legally killed should have an official coupon or tag attached to it, the adoption of a close season from October 15th to November 30th in each year for Whitefish and Salmon, Trout—the regulation of the size of the fish which may be taken—the requiring all packages said to contain game or fish for transportation to be so constructed as to show their contents, and each package to be labelled with the address of the consignor or owner—that no common carrier shall take charge of such package unless so prepared—that all officers entrusted with the enforcement of the law shall have the right to

search for and examine any parcel or package in the possession of any common carrier, that all such officers are Agents of the State whose property all fish and game is, therefore they have the right to follow wherever it may be illegal game or fish shipped from one to the other States, that cold storage of all game shall be prohibited after the close season, that the close season for deer shall be from November 20th to November 1st of the following year. These are the principal advanced ideas backed up by the proposal to make all these laws uniform for so many States, a great improvement on the condition of things existing there now, and it would be well if all the Northern States would make their laws uniform with those of each other as well as with those of Ontario and Quebec, for then there would be no doubt as to the law in any particular locality and in this way much of the illegal taking and marketing of game could be checked.

The cold storage of Game is a question fraught with a great deal of difficulty for in that is the greatest inducement for killing game out of season and in greater quantity than would be killed otherwise, because of the facility of preserving it for use during possibly a whole year and of its being marketed during all that time. The great cold storage facilities in New York and Chicago affect almost every part of Northern America. Large quantities of Game of Ontario undoubtedly reach New York in spite of our laws, because it may now be packed in closed packages and labelled anything but what it is. Even such awkward things to pack as moose and deer heads are split and packed closely, and our transportation companies carry them apparently without knowing what they are. If such articles were forced to be packed in open crates, the difficulty would probably cease to a great extent, especially if our protective officers had the right to search for illegal game or fish wherever hidden.

In our Report of 1897 we ventured to speak of some grievances which the law, as it is, fails to provide for, and we recommended that provision should be made for them, but owing to pressure of other business nothing was done by the Government. We now respectfully ask that your Government may see its way at the ensuing Session to further complete its work by enacting such clauses in the law as will tend to correct the faults complained of and in doing so we ask that they may consider the report of last year as well as this.

We are probably expected to speak of the Game of the Province and what effect the law is having upon the supply. We can speak positively with respect to deer. There is not the slightest doubt from all reports but that the supply is largely in the increase, for hunters and others report them very plentiful and appearing in districts where they before were not commonly seen. In order to get at some definite knowledge of the number of deer killed during the late open season, and of the value of the traffic to the carrying companies, those companies were asked to keep a record of the data necessary. The Canadian Express Company report that during the late open season they carried 1,754, deer weighing 182,618 pounds and derived a revenue therefrom of \$1,500. The Dominion Express Company did not carry so many but we estimate that, counting those killed by the settlers and others not carried by any of the transportation companies, at least 4,000 deer were killed this year during the 15 days' open season.

Although we have had unparalleled success with the deer law since the license section was adopted, yet much remains to make it complete. The coupon system has been very successful, both in raising a revenue and in protecting the game, chiefly on account of the situation of the deer districts. They are so remote and only accessible by boat or rail that when we prohibited the carriage of deer without a coupon attached the law became master of the situation. However, with this section of the law we do not reach that portion of the people residing in

or near the deer districts and there is too much reason to suspect that deer are killed during the close season to a certain extent by those who are not settlers in unorganized townships, or in actual want of food themselves or families, and there are rumors that even yet the lumber camps are kept supplied with moose and deer meat and some of them have been heard to boast that their meat for the camps does not cost them two cents per pound. These camps have always been a great drain upon the game supply of the country and some provision should be made to see that the grievance is stopped. Owing to the vastness of the territory, the difficulty of moving about and the ridiculously few Wardens we fear the fact remains that numerous infractions of the law do and must go unheeded under the present system. Your Commission has long ago come to the conclusion that the Deputy Game Warden system is a failure for various reasons, but chiefly because the deputy has no inducement to prosecute his neighbor if he catches him breaking the law and your Commission is not supplied with sufficient money to enable them to direct that the law be more stringently enforced. We wish to propose, in order to make the law more efficient, another scheme, that of licensing and registering guides, so that the large number of men throughout the country who act as guides to foreigners, and others in their fishing and hunting excursions shall be men well qualified for the duties, and who having been recommended by at least two responsible persons, and, having got their licenses from the Department and paid a fee of \$1.00 shall be entitled to be registered as skillful and qualified guides. It may be that in the future they shall be required to undergo an examination in order to ensure that he who holds a Government license must be a steady, reliable and skillful guide to whom a stranger may entrust himself in the sometimes perilous hunting or fishing excursions which are undertaken. These men can then afford to take time to post themselves with reference to the haunts of game or fish in the section where they propose to hunt, so that they may be successful and give satisfaction to their patrons. In doing this they will be sure to watch the game and fish more or less from a selfish interest if from no other motive and will thus prove the best possible game wardens. The guides will have charge as it were of the whole Province because on the existence in fair quantity of the game will depend their employment during the hunting season, and it will be to their interest to prevent destruction during the close season or wasteful killing during the open season. This system of licensing and registering guides has been in existence in Maine for two years and Mr. L. T. Carleton, Chairman of the Commission of Inland Fisheries and Game of Maine, in an address to the Maine Sportsmen's Fish and Game Association at Kineo, July 12th, 1898, says: "We have now 1,700 licensed registered guides in Maine, and of the wisdom and usefulness of the system I cannot speak too highly. It is the rock and sure foundation upon which we must build for fish and game protection in this State. If we are to have protection in fact and not in theory only; if we are to have the laws enforced which we ourselves have made, as we all admit the laws of the land should be enforced, it must come through this channel. The registered guide will in the future come more and more into prominence and an important personage. There is a great field of usefulness, under their influence and example and effort vast good or vast harm may be done. I am no prophet but I venture the prediction that the time is not far distant when all of the fish and game laws will be administered through the instrumentality of the first-class registered guides." Again in the Report of the Commissioners of Game and Fish for Maine for 1898 they say: "We think that every person authorized by the State to act as a guide for others to take the State's property, its fish and game, should be compelled to observe carefully all the laws and render the Commissioners and

Wardens all the service in their power by information or otherwise, in fact should be fish and game protectors, and no person should be permitted to be a guide who will not do this. It can be readily seen that with this large number of persons directly interested in aiding in the enforcement of the fish and game laws a much better system of Wardenship would be carried on, in fact those who are most conversant with the question of game protection in Maine strongly believe that without a system of laws requiring the registration of guides and prescribing certain duties for them to perform to the State, it will be practically impossible to do very much to protect game more than the enactment of restrictive laws. It has been said on the part of timber land owners of the State, that all non-residents who come to Maine to hunt or camp in the forests should be compelled to hire registered guides to accompany them during their trips through the woods." This is presumably to prevent the occurrence of extensive fires owing to neglected camp fires such as building them in improper places and in not extinguishing them before leaving the camping ground. A skillful guide would also teach many ignorant hunters how to handle their guns so as to prevent accidents, they would also prevent many hunting parties from loss of time—worse by being lost in the wilderness.

It is certain that by rendering the fish and game of our country more plentiful we increase vastly the number of those foreigners and others who annually spend a large portion of each season in our country, to our great advantage. Not only do we gain by the money left by them in our country, but often the visits of monied men is followed by large investments in mining or timber properties or other industries. So that through the influence of our game interests vast good may accrue to the country. Each year that tide of health and pleasure seekers is increasing, and will increase, and there is no reason whatever why our Province should not receive as large a share as any State on the continent; in fact, we should have every inducement for those to the south of us to spend their holidays in our country. To give some idea of the extent of this pleasure seeking by wealthy persons during the proper season, the Chief Game and Fish Commissioner of Maine, Mr. L. T. Carleton, speaking before the Fishery Congress at Tampa, Florida, in February, 1897, said: "Ten thousand citizens of other States during the open season last year, now just closed, came to Maine to fish and shoot, employed over 1,500 registered guides, skilled guides, and spent four millions of dollars among our people, and killed 10,000 deer, 250 Moose, 230 Caribou and 160 bears, while six million more dollars were spent there by non-residents last year, by visitors to our seashore and inland summer resorts, making ten millions of dollars expended in Maine last year by non-residents for pleasure." We too get our share of this class of pleasure seekers, evidenced by the constantly increasing number of summer residences which are being built by Americans each year along the shores of our beautiful lakes and rivers; and when we consider the immense amount of money necessarily spent among our people by these wealthier classes, it becomes our duty to render our country as attractive as possible, and we, your Commissioners, think that in order to do this more money should be spent each year in encouraging an increased supply of fish and game, which always affords such an attraction to tourists and pleasure seekers, no matter from what country they may come. We have a better country than Maine, just as good or better waters for fish if the stock were kept up as in Maine, and our forests are equally as well stocked with game. There is, consequently, no reason why we should not attract to our shores as large a number of visitors and derive as great a monetary advantage.

Your Commissioners are pleased to know that a public sentiment in favor of our game laws is becoming very evident, and it is the duty of every enterprising

citizen to use his influence in disseminating that sentiment, for upon it much depends. Some of our politicians fear to mention the matter on the public platform, fearing that some may think the game laws opposed to their interests, and that any one advocating them is against the interests of the agricultural classes, but nothing could be farther from the truth. If those politicians would inform themselves of the real state of things, they would find that already the game laws are yielding quite a respectable surplus over all expenses. This ought to be very satisfactory, for if the protection and preservation of the game yields a cash profit, it is very different from many other States. Maine, for instance, made a grant of \$25,000 to protect its game for the last year, and it costs New York for the management of its fish and game \$85,000 per annum, and other States in proportion. Under these circumstances, we think that your Government should allow the whole revenue derived in the working of the Act to be devoted to the interests of game by affording more protection. We also think that a certain amount of money could very judiciously be spent in properly re-stocking, with desirable fish, many of those small lakes and rivers in the North, which, during much of the summer season, attract so many desirable visitors. Those waters, through wasteful methods of fishing, and through the absence of any proper system of re-stocking, are becoming depleted of the fish with which they formerly teemed. We have in that Northern country the most interesting and charming scenery, the most delightful and health-giving air and water, invigorating beyond anything else on the continent, and which is fast becoming appreciated by our Southern neighbors and is being taken advantage of by them in increasing numbers each year; but if we allow to vanish the attractions of game and fish which lend such charms to an outing for both old and young, and which affords them healthful recreation, then we voluntarily deprive that Northern country of one of its great sources of revenue. This is speaking from the hard financial side of the question, and without mentioning the many charming social ties constantly being formed with the most desirable class of our neighboring cousins across the lakes.

That man is an enemy to his country and an enemy to society who wantonly, carelessly and thoughtlessly destroys either the fish or game or birds of the country, and it has gone beyond argument that it is the duty of the Government to enforce such laws as will tend to restore as nearly as may the primitive and boundless plentitude of these most interesting objects of nature. Since it has been shown that this can be done without any great cost to the community, or even that the indirect benefits far more than counter balance the cost, it would seem that the Government should take further steps for making the laws more efficient and for enforcing them in a more effective manner. If by these means we increase the number of our birds, we increase the number and interest of the profitable visitors who each year come to our shores, we increase the pleasure and improve the health of our own people, we increase vastly the revenue of our agricultural and fruit growing classes and thus do incalculable good to the country. If we increase the number of our fish almost the same argument will hold, and we your Commissioners think that these sentiments should be taught in our schools by every father to his child and on every occasion that any one has the opportunity to do so, for we consider that no greater field exists for doing good. Much depends upon education, this is shown by a letter received by one of the Commissioners from a very prominent lawyer in New York who each summer comes north with his family. In it he requested the privilege and almost demanded it as a right that he should be allowed to kill what deer and partridge he needed for use at his cottage. Surely this indicated either a want of education in game matters or thoughtlessness. This brings up the point whether summer tourists should be

allowed to take game with them to their camps. We have too much reason to think that they are actually used in providing the camps with game at a time when nothing may be shot legally except vermin.

Moose.

Moose and caribou are said to be largely on the increase in spite of the report that numbers are being illegally killed by Indians and others. We think if a system of licensed guides be established it will do much to prevent this. It is reported that all the animals in the Algonquin Park, deer, moose, beaver, otter, etc., etc, are increasing rapidly, this should be the case for there they are protected during the whole year otherwise than from predatory animals. Mr. G. W. Bartlett, the Superintendent of the Park, reports adversely in reference to the introduction of Mongolian Pheasants, those sent to him all died, and he thinks this could not be otherwise on account of the depth of snow in winter. This is as we expected for the Mongolian Pheasant is a ground feeder. Capercailzie will do all right, as would probably Ptarmigan, Sharptailed Grouse and Black Game. Dr. Barbour, of Edinburgh, has kindly promised to send for the Park a number of Capercailzie and Black Grouse next year. These birds have succeeded in the Maine forests, and there is no reason why they should not do well in our Great National Park.

Quail.

Quail were immensely abundant last season, no doubt owing to the favorable nesting season, still many of the birds were small and unfit to shoot at the opening of the season, October 15th, and a great many of our best sportsmen would like to see the season date from November 1st to December 15th. In fact we think this change would give pretty general satisfaction. We are informed that before the ensuing Session of the Legislature, the sportsmen of the Western and Southern Counties, the quail district, intend holding a Convention and let the Commission know the result of their deliberations on the quail season.

Ruffed Grouse.

This bird was reported as scarce in some localities and more plentiful in others. We are afraid that it is not on the increase although certainly it is not shot in anything like the numbers it formerly was when it was allowed to be sold. Its scarcity is probably owing to the clearing up of its haunts in the older sections of the Province, and also to the vigorous hunting by rabbit hunters during the close season when they should not be disturbed or molested. They are hunted by these men and illegally sold to gourmands, who should be punished for encouraging such traffic as well as the man who sells. Some provision should be made in the law to meet the case for it is becoming very common for such men, both American and Canadians, to hire a pot hunter to go out and shoot for them taking the game and paying the man for his work or time, yet contending that this is not buying the game.

Woodcock.

For some unaccountable reason, if it be not approaching extermination, this bird was unusually scarce during the season, in fact very few were taken. To

the work of the southern continuous shooters, as long as the bird is in their country, added to that of the rabbit hunter during the nesting season in our own country, may be attributed much of the scarcity.

Duck.

Duck were not nearly as plentiful this season as a few seasons ago although in some localities they were fairly plentiful. Now these birds seem to congregate more particularly in some favorite haunts and are not so generally distributed over the country as formerly. In such preserves as those of Long Point and St. Clair Flats and some others they were probably as plentiful or more so, but at these points special efforts are made to induce the birds to come by baiting or feeding and also while they are being shot at all over the country after September 1st. At these preserves they do not begin to shoot them but withhold their hand until a month or six weeks later. The result is that the birds soon find these harbors of safety and as there is always plenty of food, they congregate there in great numbers until frozen out. At these places even when shooting is going on, they are not disturbed during the morning or evening, certainly not before sunrise or after sunset, while in other sections they are reluctantly and foolishly pursued from daylight until dark and even by moonlight. On account of the growing scarcity of duck in most sections of the Province, your Commissioners have both last year and this year received several largely signed Petitions asking that duck be included in the non-sale clause, and we have to report that a majority of the Commissioners are in favor of non-sale, but they fear that it would not be generally popular. There is no doubt that no single provision would so effectually prevent the extermination of the birds as this, for as long as a few shillings can be made by selling duck a host of men will pursue them during the whole season. It is said that in certain localities there are some families of hunters who kill as many as two or three thousand duck in a season, while the legitimate sportsmen has to be content with forty or fifty birds.

If skegs, sailboats and steamers were forbidden to be used in hunting ducks, and decoys not allowed to be placed out farther than 100 yards from any natural point of land or bed of rushes connected with the land, then the open water would always be a place of safety for the birds and not so many would be killed, in fact not a tithe of those killed now. We have often urged this concession and again we ask that it be made a part of the law without fail.

To encourage the propagation of game birds, animals and fish we are of the opinion that some provision should be made in the Act by which any such person or persons so engaged may be allowed to regulate their ponds, flocks or herds as seems best to them to ensure success, and if killed during the close season shall not be marketed except during the open season safeguarded by a permit, special tags or coupons as may be deemed best.

Mongolian Pheasants.

We regret to say that the Pheasantry at Rondeau Park is not in as prosperous a condition as we could wish. Last year there were about 700 birds there but in 1898 the young birds which were in confinement did not do so well, many of them seemed to die of some wasting disease. Specimens were sent to the Chairman of this Commission who upon examination found that the birds had died of Tuberculosis. We would urge that all birds found ailing should be at once isolated or killed, and in the Spring as many as can be spared should be planted in suitable localities along the Southern tier of Counties. The caretaker Mr. I. Gardiner

complains that while each hen pheasant lays about sixty eggs in a season owing to the difficulty of getting proper setting hens to hatch the eggs many are lost, besides the young chicks are often infested with lice from the hen, and this necessitates handling and oiling which destroys a certain number. If he had an incubator all of this difficulty would be avoided and greater success would attend his efforts. He reports that many hen Pheasants which have strayed into the Park and hatched their own eggs appear to be doing well with their brood, but in order to secure the greatest result in a short time an incubator should be used so that these fine birds may be added to our fauna as soon as possible. Last year the State of Ohio distributed 6,000 Pheasant eggs and planted 2,000 Mongolian Pheasants and the results are said to be very encouraging.

INSECTIVOROUS BIRDS.

We are desirous of again drawing the attention of your Government to the wanton slaughter of these, the best friends of the farmer and fruit grower, which goes on constantly, not only by those who have no legal right to destroy them, but also by those whom the Government sees fit to issue permits to, at the request of the Member for the County in which the applicant resides. This no doubt is done good naturedly by the Member, little thinking what harm he is inflicting upon his farmer friends and his country generally. When we think of the alarming number of persons in the Province, between 50 and 60, who have permits to destroy all the birds and birds' eggs they wish during the whole year, to sell, exchange, and barter the same in foreign countries merely for what money there is in them, we think it is high time something is done to check such mean and wasteful destruction. While in many particulars we are ahead of our neighbours to the south of us in economic questions, in this we are far behind. To exemplify this we have only to mention that the Senate of the United States has just adopted, January 7th, 1899, Mr. Lacey's Bill, which enlarges the scope of the United States Fish Commission, so that it shall include game bird interests, and among other things the Bill forbids the importation of birds and feathers for ornamental purposes; also it forbids transportation of the same from one State to another, under a penalty of \$50 for each offence. Here is an intelligent move in the right direction, and every other Government should follow the splendid example, for once you stop the sale or commerce of feathers and birds, you save the lives of our best friends. Men and boys will not engage in destroying birds if there is no money in it, and thus an incalculable good is done to the agricultural classes. No permit should be granted to any one except it be for strictly scientific purposes. Nothing can be imagined further from this purpose than the conduct of many of those getting these permits. Mounting birds, many of them our most beautiful songsters and most useful insectivorous, and putting them in cases to ornament rooms, bar-rooms, and other places, is rather a questionable line of scientific work, and should be discontinued by the enactment of a law to prevent it.

As we suggested in our Report of 1896, a fee of not less than \$5 should be charged for each permit. No one under 18 years of age should be granted one, and then only when recommended by two reliable and well-known scientific men. The applicant should also be required to give bonds of at least \$200 that the permit will not be used for other than strictly scientific study, and not for barter. This should apply of course to taxidermists, who chiefly take out the permit for the purpose of making money out of the sale of mounted collections, and whose place of business is the depot to which a large proportion of the captured birds are sent from all over the country. The State of Maine fixes the number of these

permits strictly to ten in each year, and these under pretty severe restrictions. We trust your Government will do something to save our birds, which are becoming so alarmingly scarce. This is more particularly the duty of the Ontario Government, since a very large proportion of the birds of the Continent come to our Province each spring to breed, and it is here the collectors flock to prosecute their nefarious work.

THE FISHERIES.

We are pleased to be able to congratulate your Government upon assuming control of the Fisheries of Ontario, the greatest fresh water fisheries in the world. We have long wanted the Government to have control, for we assumed that then the industry would receive that attention which its importance deserves. An industry whose annual products are worth over \$2,000,000, and this without counting the value of all the fish wasted by extravagant methods of fishing, and by poachers, of which we have no record, is well worth the expenditure of both time and money to develop and improve.

If properly managed, as we have no doubt they will be, they ought to yield a revenue far greater than the paltry \$30,000, which has been, about the annual income, and of this sum about \$25,000 has been paid to officials, leaving a net income of but \$6,000 from this immense industry. Such a showing as this indicates simply incompetence, or worse, when we consider also what is the truth that many of our best waters are almost depopulated of fish. However, under the usual careful and economic management of your Government, we hope to see a great improvement in this interesting and important possession of the Province. We have every confidence that the present officers of the Department will do the best that in them lies to make the administration a success.

The wonderful success which has attended the administration of the United States Fish Commission, under the able efforts of two such Commissioners as Mr. Spencer Baird, followed by Mr. Marshall Macdonald, would lead us to hope that when the Government sees fit to appoint the Commissioner of Fisheries they may secure one who by his scientific and practical attainments may by wise measures restore to some extent the primitive abundance of the valuable food fishes of our waters.

RECOMMENDATIONS.

(1) Section 6 sub sec. 1 should have added at the end "and no person shall have in his possession any of the said hereinbefore mentioned animals no matter where procured, or any part or portion of any such animals during the period in which they are so protected, provided however that they may be exposed for sale for five days and no longer after such period and may be had in possession for the private use of the owner and his family at any time, but in all cases the proof of the time of killing, taking or purchasing shall be on the person so in possession.

(2) In subsection 1 of section 14 the composition is ambiguous, meaning not clear, "and after the last word and in the section add" or any pelt of the otter, beaver or muskrat during the period in which they are protected.

(3) In section 7 subsection 3 cross out "or any species of rabbit."

(4) Reverse subsection 4 of section 7 and subsection 3 of section 8.

(5) At the end of subsection 1 section 22 add "and all Deputy Wardens shall take the following oath of office:—I, A. B., Deputy Game Warden, appointed under the provisions of the Ontario Game Protection Act, do solemnly swear that to the best of my judgment I will faithfully, honestly and impartially fulfil, execute and perform the office and duty of such Deputy Warden according to the true intent and meaning of the Ontario Game Act."

(6) After the word shall (first) in subsection 2 of section 4 insert the words "Carry such license on the person while hunting, and."

(7) In section 23 subsection 1 after the first "every" insert the word "Warden," and in subsection 2 of the same section, after the first "every" insert "Warden," and also in subsection 3 after first "every" insert "Warden."

(8) In section 24 subsection 1 after the word "proceedings" insert "or who neglects or refuses to carry out the provisions of this Act."

(9) In subsection 2 section 24 cross out the words following "overseers" to the word and after "Act," and insert "shall be Deputy Wardens."

(10) In subsection 1 of section 32 in place of the word "three" place "six."

(11) In section 28 subsection 1 between the figures 2 and 14 add "5, 6, 7, 8 and."

(12) In section 30 after the word "ammunition" insert "canoes, skiffs, punts or boats, raw skins and heads of wild deer, moose or caribou and all peltries of otter, beaver and muskrat," also cross out the words "public auction" and insert the words "the chief Game Warden or his order."

(13) In section 34 subsection 1 cross out all the words after "only" to "and" after the word "family."

(14) In section 5 cross out the word "carbine."

(15) In section 9 subsection (1) (a) after the first word "killed" insert "or had in possession."

(16) Make subsection 4 section 8 permanent non-sale of said birds by crossing out all the words after procured, and insert "at any time."

(17) Enact a system of licensed guides.

(18) Enact some simpler way in which to post large tracts of land than that two notices must be put up on every forty acres.

(19) Enact that game dealers shall take out a license to deal in game and fish, and that they shall keep a record of where all game is bought, also that persons and companies in cold storage business be required to take out a license and to furnish an account of game sold or kept by them for sale or for private individuals, such account to be verified by statutory declaration, and the amount of game which may be kept by a private individual in cold storage out of season be limited.

(20) Enact that taxidermists and so-called scientific collectors of birds and eggs shall procure a license at a fee of \$5 per annum, and give a bond of \$200 that he will strictly adhere to the provisions of the license, and not barter birds, skins or eggs.

(21) Enact that the Wardens shall have a permanent search warrant and be able to grant search warrants to another officer for the purposes of the Act.

(22) Enact some provision against the cold storage of game for long periods.

(23) Enact a provision that all parcels in which game is packed for transportation be so constructed as to show their contents for inspection and have them labelled with the owner's address and its contents.

(24) Enact that cotton tail hares may not be taken with a gun during the close season, but may be hunted at any time in any other way.

(25) Reinsert in the Act the provision that not more than 300 duck may be taken in any one season.

(26) In section 8 subsection 1 leave out the words "half an hour" in the two instances where they occur.

(27) Enact a provision to prevent guides or others engaging themselves to shoot by the day or for a consideration for their time on condition that the game is given to the person so hiring them.

(28) Define clearly what constitutes a resident under the Act which will confer the rights of a citizen as to the provisions of the Act. Also of a "settler" who may avoid the license to hunt deer.

(29) Re-appoint retiring Commission.

(30) Make a residence of the last six months prior to September 15th in each year necessary to constitute a resident.

(31) Enact such provision as will make the offence of buying game equivalent to that of selling it

(32) Enact that no bass shall be caught during the winter through the ice, and that no bass be allowed to be sold any time.

(33) While dogs are allowed in hunting deer rescind the clause prohibiting shooting in the water.

(34) Provide that foreigners who have taken out the general hunting license may take with them a limited quantity of the game shot by them, after obtaining a permit from the Chief Warden or a Warden to do so, for example, two deer, one moose, 50 ducks and other game as the Warden may choose to allow.

(35) It is also suggested that the Honorable the Minister of Customs be memorialized and asked to have such limitation passed as will give effect to the above resolution.

(36) Enact that not more than ten licenses to take birds and their eggs for scientific purposes be granted in any one year.

(37) Enact that as there is a surplus to the credit of the Commission, a Deputy Warden be appointed and paid a small annual sum of not more than \$100 in certain important localities where game abounds. These points to be decided by the Commission.

All of which is respectfully submitted,

G. A. MacCALLUM,
Chairman Ontario Game and Fish Commission.

Dunnville, December 31st, 1898.

REPORT OF CHIEF GAME WARDEN.

TORONTO, January, 1899.

G. A. MACCALLUM, Esq., M.D.,

Chairman of the Ontario Fish and Game Commission.

SIR,—I have again the honor of submitting for your consideration, and which I trust will meet your approval, the work of the Commission for the year ending December 31st, 1898.

Since the last meeting of the Commission no amendments to the Game Laws have been made. It is desirable during the coming Session of the Legislature that some much-needed amendments be passed, strengthening the laws in general, making them more effective, also making it unnecessary to alter or amend for years to come.

A number of Orders-in-Council affecting the work of the Commission have been passed during the year, copies of which appear in this Report.

All possible assistance has been accorded me by the respective Railway, Steamboat, and Express Companies in the Province, the officials of which deserve the warmest thanks of your Commission, also by the Press, which has rendered valuable assistance to me.

WARDENS.

It is again my pleasant duty to thank the Wardens for the very efficient discharge of their duties, which are increasing to such an extent that these duties, which formerly only occupied part of their time, now require their whole time and attention for the personal and effective supervision of their respective districts.

DEPUTY WARDENS.

There is a decrease in the number of Deputy Wardens, there being 507 on the list as against 518 for 1897. The list has been revised, resulting in 51 being struck off, many having left the limits, others having been removed by death and some for cause. Many of the Deputy Wardens during the past year have done good work in their respective localities.

SPORTSMEN

Are realizing the necessity of doing their part in game and fish protection in the Province. Numerous instances have been reported of them prosecuting infractions brought to their notice, which augurs well for the future.

GAME IN ONTARIO.

I am pleased to report that deer, under the present regulations, are increasing, which could scarcely be expected from the large increase of hunters and the very large number of deer killed during the two weeks of the open season. From the results of the last three seasons it certainly appears as though from a combination of circumstances the red deer will more than hold their own for many years to come, with wise and effective protection. The cutting of the large tim

ber and subsequent rapid growth of young trees, makes in many portions of the Northern Districts an almost impenetrable cover, providing abundance of food and shelter which is a powerful factor in the protection of moose and deer. In the event of a short open season for moose in 1900 being allowed under special license, only males should be killed and provision made for a penalty large enough to deter poachers and others killing cow moose under any consideration. Moose and caribou, from Warden Willmott's Report, are becoming more numerous and making satisfactory progress in sections of the Province remote from Indians and lumber camps.

Ruffed grouse or partridge have, in the Northern District afforded fair sport but have been scarce in the older settled portions. The bird-nesting boys and the farmer's vagrant cats are in a large measure responsible, not only for the decrease in these valuable game birds, but they also have done much in causing the unfortunate decrease in many species of our most valuable insectivorous birds.

Quail have again become in the South and Western counties a factor in field sports, in a large measure due to prohibiting the sale or barter of them, but even this regulation is evaded by the market hunters with the assistance and connivance of pot hunting sportsmen, who hire the market hunters as guides, paying them in proportion to the game killed, the so called sportsmen taking the result of the day's shooting and paying accordingly.

Ducks have been more abundant in many localities than for many years past, while in others the shooting has not been satisfactory, the unusual fine weather late in the season up North having been, it is said, the cause of the lateness of the flight South. The same reasons are given that so few woodcock and snipe were found in their usual resorts during the latter part of the open season.

WILD TURKEYS.

Warden Quallins reports a few flocks still left in Essex County. I doubt if they will ever be known in the Province again as a factor in the list of Ontario's game birds. We have the satisfaction of knowing that the mission of these grand birds in the Province has not been a complete failure, they have been instrumental in improving the domestic breeds to such an extent that they cannot be excelled for size and perfection. I know of no reason why the place of the wild turkey should not be filled by the English and Mongolian pheasants.

INSECTIVOROUS BIRDS.

I may use the same words as in my last year's Report that it is a most difficult matter to effect the desired reduction in the number of permits issued, giving authority to those to whom issued to take insectivorous birds and eggs. Every possible assistance should be extended to those procuring these permits for strictly scientific purposes. It would be interesting to know how many of the fifty-six permits issued were for that purpose. Responsible men should not recommend the granting of these permits for the amusement of unthinking boys who, as a rule, use them as a means of indulging in their destructive proclivities.

FISH.

The long pending question of jurisdiction over the Fisheries of the Province has at last been decided in accordance with the contention of the Province, giving

it control over Provincial waters, resulting in the appointment of Mr. S. T. Bastedo to the important position of Deputy Commissioner of Fisheries, under whose able administration the desired improvement may shortly be expected.

SHOOTING LICENSES.

Fifty-two non-resident licenses have been issued as against fifty-three in 1897. Returns have been made for three thousand three hundred deer hunter's licenses to December 31st, leaving a number of accounts from issuers still unclosed. Two thousand four hundred and four permits have been issued to settlers residing in the Northern part of the Province. It has been said that not more than one-half of these permits were issued to and used by bona fide settlers, the class of men in poor circumstances the permits were intended to assist. Professional and business men, retired merchants and others in good circumstances who reside in the exempted districts claim to be settlers, and receive permits from the Township Clerks who have been appointed issuers. These evasions have caused strong comment and dissatisfaction from the large number of hunters who procured licenses; many who bought licenses in 1897 neglected to do so last November, a large number of prosecutions resulting for hunting without licenses. The abuse of the system of settler's permits may cause the Government to withdraw the privilege granted with such good intentions.

In June, 1898, two thousand one hundred and forty copies of the following circular were sent to that number of hunters who bought licenses in 1897, and whose address I had, with the following results:

PARLIAMENT BUILDINGS,
Toronto, June, 1898.

SIR,—During the last Session a good deal of discussion took place as to the legislation respecting deer and particularly as to the change in the law prohibiting the killing of deer in the water. There have been very divergent opinions expressed regarding this provision of the Act, and there always have been extreme differences of opinion, apparently about equally divided, as to the propriety of allowing the hounding of deer. Admittedly the coupon system has had a useful effect in limiting the number of deer brought out, and there are those who urge that the prohibition of hounding would very much reduce the yearly slaughter of deer. The views of sportsmen on all matters affecting game are valued. Sometimes, however, their opinions are not founded on considerations of game protection, or limitation of the number of deer or other game which may be taken. It is, however, thought that it might be useful to have the views of those who last year received licenses to shoot, on some of these matters, and I accordingly enclose herewith a blank form with questions which I will thank you to answer and return to me. It will be most advantageous if you will in the first place give your answer either affirmatively or negatively, and then add any reasons which may occur to you.

I am,

Your obedient servant,

E. TINSLEY,
Chief Game Warden.

QUESTIONS:

- (1) Do you approve of the hounding of deer ?
- (2) Do you think the abolition of hounding would conduce to the increased protection of deer ?
- (3) Give reasons for your answer to No. 2.
- (4) Do you approve of the killing of deer in the water or when just leaving the water ?
- (5) Give reasons for your answer.
- (6) The protection of deer being the object in view, please make any suggestions which you may consider useful to the Government or the Commissioners on the subject.

REPLIES TO CIRCULAR *re* DEER SHOOTING.

Against hounding of deer and against killing in water.....	108
Approve of hounding of deer and against killing in water ..	164
Approve of hounding of deer and approve killing in water ..	188
Approve of hounding of deer and approve of killing when leaving the water	10
Against hounding of deer and no answer to question of kill- ing deer in the water	3
Against hounding of deer and for killing in water	31
	— 504
Total number of circulars sent out	2,140
Replies received from.....	504
	Majority.
Approve of hounding of deer	220
Against killing in the water	53

It is reasonable to suppose that the one thousand six hundred and thirty-six deer hunters who did not reply are satisfied with the present laws relating to deer.

The suggestions in addition to the answers from those responding are as divergent as it is possible to be.

All of which is respectfully submitted,

Your obedient servant,

E. TINSLEY,
Chief Game Warden.

BEAUMARIS, December, 1898.

E. TINSLEY, ESQ.,
Chief Warden, Toronto,

SIR:—I have the honor of submitting to you my Annual Report in respect of game in the Northern sections of the Province, over which I have supervision as Warden.

Deer have during the past hunting season been reported as plentiful in most sections, although in many cases harder to get than usual. From personal observation I think those procured by hunters have been larger in size than for some years, accounted for no doubt, by last winter being so favorable for these animals and also by the early spring, which gave the fawns every opportunity to attain greater weights than usual. It is the prevalent opinion that deer are holding their own, and in many instances they are reported as on the increase.

Regarding the number taken out I do not think this comes up to last year except in certain localities. For instance the Muskoka Lake Navigation Co. have this year handled 318 as against 230 last year, 94 also being expressed from Gravenhurst (town) Station.

Prosecutions. During the last year, several lumber firms have been fined for having carcasses of deer and hides in their possession. Several parties have also been fined for hunting without licenses, shooting in the water, Sunday hunting, etc. These will naturally have the effect of deterring others from committing similar infractions in the future. There are conflicting opinions regarding the prohibition of water shooting. Whilst this probably diminishes the number killed, I am afraid that it increases the number of wounded deer, which get away and die in the woods, as many hunters not being accustomed to the bush are naturally afraid of leaving their stations on the runways in the pursuit of animals which they know have received fatal shots. It is my opinion that dog running and water shooting go hand in hand.

Moose and Caribou. These animals are reported to be on the increase in the N. and N. W. sections of the Province; on a recent trip in company with Warden H. K. Smith, up the Blanche River about 75 miles north of Lake Temiscamingue, we saw several of these noble animals which took little or no notice of us. This region when developed will form one of the most important agricultural sections in Ontario, as there seems no limit to good land, free from stones, easily cleared, and not subject to early frosts.

Partridges. These have been more plentiful this fall owing to the favorable breeding season. We have not had so much trouble as usual in respect to illicit furs, owing no doubt to the protection of beaver in the Province of Quebec.

I would respectfully call your attention to the quality of paper on which the coupons are printed, this on getting in the least degree damp, tears, especially at the eyelet holes, a stronger substitute would be most advisable.

On the whole, it is most gratifying to note the result of the efforts of the Fish and Game Commission, which seem to be increasing in popularity year by year.

In closing I beg to thank Mr. Bartlett, Superintendent of the Algonquin National Park and other Government employees, for the aid and interest they have taken in this matter, to them a non-obligatory duty.

I am, Sir,

Your obedient servant,

JOHN H. WILLMOTT,
Warden.

BELLEVILLE, 31st December, 1898.

E. TINSLEY, ESQ.,
Chief Warden.

SIR,—Herewith I beg to submit my Annual Report, as to the condition of Game in this District.

Deer have been quite plentiful in all the hunting grounds this season, and in consequence the number killed during the late open season was large, but not, I think, excessive.

The law prohibiting killing in the water, I believe, has not been well observed, but it is almost impossible to obtain evidence sufficient to convict for the offence, as the regulation is not regarded favorably in this District.

Evasions of the license clause appear to have been numerous, but these will be promptly dealt with as soon as investigations are concluded.

The method of issuing settlers' permits is very unsatisfactory, many of the Township Clerks paying little regard to their instructions in connection therewith.

Feathered Game (partridge excepted) has been fairly plentiful the past season, and partridge are slowly recovering from the effects of the unfavorable hatching season of last year, but it will be some time before they will be as plentiful as in 1896.

Respecting fur-bearing animals, beaver and otter are not showing any signs of increase, but muskrats appear to be holding their own.

The laws, on the whole, have not been as well observed this year as usual, but every complaint has been promptly investigated, and the violators punished when warranted by the evidence.

The apathy of many of the Deputy Wardens continues, and it is to be hoped that a combination of the offices of Fishery Overseers and Deputy Wardens will be effected, and the services of some good man secured.

I have the honor to be, Sir,

Your obedient servant,

H. K. SMITH.

LEAMINGTON, December 27th, 1898.

E. TINSLEY,
Chief Game Warden.

SIR,—I have the honor of submitting my Annual Report for the year 1898.

Quail in Western District.

They have been abundant in Essex and Kent during the past season, in a large measure due to the commendable action of the members of the sportsmen's clubs in these counties, who have, not only during the last two or three years at considerable expense imported large number, of these grand game birds, and have also rendered me great assistance in the protection of them.

Partridge

Have been fairly plentiful, and in some localities have been found in larger numbers than for some years past.

Deer in Essex.

I am glad to state are increasing, and all possible measures have been taken for their protection in accordance with Order in Council.

Duck Shooting.

On the marshes adjoining Lake St. Clair and on the Detroit and St. Clair rivers has been fairly good: and some large bags have been made. It is reasonable to expect that with prohibition of spring shooting in the State of Michigan, the Lake St. Clair marshes will in the near future again become famous as noted duck resorts.

Wild Turkey.

There are a few flocks of wild turkeys still left in the woods in the vicinity of Renwick, in the county of Kent. They are not increasing to the extent desired in consequence of the small amount of timber lands left in that vicinity. From information received I am under the impression that the Indians are now anxious to prevent the extermination of the wild turkeys, the largest of our native game birds.

The usual complaints are made to me by many sportsmen that the woodcock shooting season should commence earlier. They say the Americans have the advantage of them on the frontier, their seasons for woodcock being earlier.

Complaints from time to time are published in the newspapers to the effect that illegal shooting is done by Americans in Canadian waters, which on being investigated have no foundation, the shooting being done in American waters.

I have received faithful assistance from the Deputy Wardens in my district, who have done all that could possibly be expected in preventing infraction of the Game Laws, and in bringing poachers to justice.

Many infractions of the Fishery laws, have been complained of, which I feel sure will receive attention and be remedied under the present administration.

Pelee Island is becoming quite a summer resort for Americans, who, I am informed, are in the habit of hunting and shooting without going through the formality of procuring non-resident licenses as the law requires. This will require the appointment of a good Deputy Warden, a resident of the Island, in consequence of the difficulty of landing during stormy weather.

Your obedient servant,

F. C. QUALLINS.

DUNNVILLE, Dec. 31st, 1898

E. TINSLEY, ESQ.,
Chief Warden.

SIR,—I beg to submit to you my Annual Report from this district. Hunting and taking of game for sport and other purposes is vastly on the increase, especially among boys under fifteen, which would suggest some further restraint on guns, and the open season, if the main object is to propagate and preserve the game of this country.

There are still some changes that are urgently needed in the game laws as you are already well aware, some of which are already noted in our former reports. Every article used by an illegal hunter, caught in the act, should be liable to seizure.

The system of Deputy Wardens should be changed, and, I think, two good Deputy Officers appointed in their stead, one in the Western and the other in the Eastern part of my district, and who should be allowed a suitable salary, or some other system of assisting the Wardens to collect suitable evidence for enforcing the game laws, than that at present in use, is urgently needed.

Some further powers should be allowed the Wardens, to stop the sale of game being sent out of the country; also for inspecting boxes, bales, or other packages suspected at freight stations and express offices, also on freight and baggage cars, the present system being found too slow and uncertain.

The open season, in this section for duck, should be changed to the fifteenth September; all our sportsmen recommend this. Migrating ducks have not been as plentiful the past season as in former years, one reason being the American shooting in the spring along our frontiers, resulting in destroying the female birds on their way to the breeding grounds.

Black ducks, with young broods, seemed to be more numerous than usual during the summer, but were found to be scarce when the season opened for shooting.

The smaller birds, snipe and plover, were not so numerous as in past seasons, the very dry weather during the past summer curtailing their food supply of insects, low and marshy grounds everywhere being unusually dry and hard until October.

Partridge and quail are reported not so much in evidence as they should have been. One reason is, I think, that weasels and skunks are becoming too plentiful.

Black and grey squirrels were found quite numerous in sections where the nut supply was good—an unusual number of grey.

Squirrels have been seen and taken in this district during the open season.

Wild geese visited us in unusual numbers during the past season, and stopped long enough to make very good shooting in many places.

I have the honor to be, Sir,

Your obedient servant,

J. A. GILL,
Warden.

LIST OF ISSUERS OF DEER LICENSES FOR 1898.

Name.	Address.
J. H. Wilmott	Beaumaris.
William Kirk	Bracebridge.
J. Sharp	Burk's Falls.
J. A. Ellis	Fenelon Falls.
J. A. Johnson	Parry Sound.
H. K. Shaw	Rosseau.
S. A. Huntington	North Bay.
John Hines	Barrie.
John Regan	Orillia.
W. H. Lawson	Park Head.
W. Climie	Listowel.
P. M. Shannon	Port Carling.
J. B. McWilliams	Peterborough.
J. H. Brickwood	Kingston.
C. A. Richards	Tara.
John Nott	Port Perry.
W. Fielding	Minden.
J. Walmsley	Warton.
George Eady	Renfrew.
Wm. Mathieson	Havelock.
Wm. Carmichael	Collingwood.
S. M. Johnston	Arnprior.
C. S. Gillespie	Campbellford.
F. J. Moore	Lakefield.
A. H. Taylor	Ottawa.
Thomas Beasley	Hamilton.
James Dougherty	Stouffville.
T. Fraser	Norwood.
B. O'Hara	Madoc.
W. Prust	Haliburton.
R. Cockburn	Sturgeon Falls.
R. Rush	Sault Ste. Marie.
J. J. Bamfield	Niagara Falls.
Wm. Carmichael	Powassan.
Dr. G. A. MacCallum	Dunnville.
J. T. Robinson	Bobcaygeon.
B. J. Gilligan	Mattawa.
Major Lloyd	Newmarket.
T. G. Eastland	Apsley.
W. A. Field	Lanark.
Austin Moran	Dacre.
Peter Munshaw	Eugenia.
William Long	Kalapore.
F. C. Quallins	Leamington.
James Donaldson	Springbank.
Charles Knapp	Lions Head.
Edward Mosgrove	Kirkfield.
W. J. Leatherdale	Coldwater.
J. D. Rowe	Trenton.

Name.	Address.
John H. Ramer	Markham.
Stephen Lake	West Lake.
J. M. Clark	Smith's Falls.
William Lynn	Penetanguishene.
B. C. Hubbell	Marmora
W. J. Gallagher	Frankford.
H. Wesley Huff	Napanee.
M. Maybee	Madoc.
J. Cleak	Bancroft.
Chas. Hart	Barrie
F. J. Stewart	Stayner.
Benjamin Bryan	Lindsay.
A. N. Ewing	Waterford.
A. D. Carley	King.
J. Y. Hammond	St. Thomas.
George Packham	Alliston.
W. P. McEwan	Almonte.
Eslie Terrill	Wooler.
Henry Mathen	Brockville.
J. F. Gillespie	Picton.
D. Woodward	Cannington.
Duncan McMillan	Beaverton.
H. A. Lunan	Unionville.
J. E. Gould	Uxbridge.
George Southeran	Millbrook.
E. J. Breen	Uxbridge.
H. B. Harrison	Owen Sound.
Henry Taylor	Perth.
O. Bascom	Kemptville.
G. A. Pollock	Aurora.
John Wright	Flesherton.
N. D. McCallum	Carleton Place.
A. E. Sarvis	Sarnia.
Jas. Martin	Hillsdale.
J. C. Ray	Cambray.
David Williams	Gooderham.
G. W. Stoddart	Bradford.
J. N. Christie	Palmerston.
Duncan McFarlane	Red Bay.
A. H. Brandon	Gelert.
J. H. Anderson	Tory Hill
James Scott	Gooderham.
J. Austin	Kimmount.
James Reeves	Eganville.
H. K. Smith	Belleville.
R. Kimber Johns	Gravenhurst.
Peter Stewart	Grant.
John Carter	Sundridge.
J. B. Sauche	Mayerville.
H. Rankin	Prescott.
John Chanonhouse	Eganville.
Robert Watt	Brussels.

Name.	Address.
John P. Evans	London.
T. Upton	Sprucedale.
A. McDonald	Sundridge.
Andrew Hunter	Moorewood.
W. R. Craig	Russell.
Dr. John Elkington	Lavant.
B. B. Miller	Warton.
F. Iveson	Metcalf.
Richard Cole	South River.
F. N. MacFie	Dunchurch.
Thomas Kennedy	Parry Sound.
Wm. Campbell	Restoul.
J. P. Labrash	Maple Island.
W. Ireland	Parry Sound.
W. Clearwater	Huntsville.
G. G. Thrasher	Sterling.
William Dafoe	Avan.
James Packham	Brampton.
George Bilton	Newboro.
James Tedford	Dundalk.
John Scheich	Trout Creek.
Andrew Morton	Brantford.
George B. Holmes	Markdale.
Donald A. McNiven	Barrie.
W. H. Blair	Arthur.
P. K. Newton	Tweed.
C. E. Clancy	Enterprise.
John A. McFarland	Calabogie.
S. G. Best	Maganetawan.
Charles Mills	Warkworth.
John Brown	Rockdale.
Peter D. McKercher	L'Original.
John M. Collins	Ormsby.
A. S. Halliday	Chesley.
Dr. Spohn	Penetanguishene.
S. L. Doolittle	Ingersoll.
T. W. Jackson	Orono.
H. B. Preston	Marmora.
William Harris, Jr.	Day Mills.
George W. Savage	Novar.
J. B. Shrigley	Dorset.
Andrew Pattullo	Woodstock.
Robert McConkey	Kearney.
Joseph Rogers	Toronto.

Copy of an Order-in-Council approved by His Honour the Lieutenant-Governor, the 9th day of March, A.D. 1898.

Upon recommendation of the report of the Chief Game Warden, dated 4th March, 1898, and upon the recommendation of the Honourable the Commissioner of Crown Lands, the Committee of Council advise that the provisions of the Order-in-Council of the 14th day of October, 1897, exempting settlers from taking out licenses to shoot deer, be extended to the Townships of St. Edmunds, Lindsay, Eastnor, and Albermarle in the County of Bruce, and that the said Order-in-Council be deemed to have included these townships as from and after the date thereof.

Certified,

(Signed) J. LONSDALE CAPREOL,
Asst. Clerk, Executive Council.

Copy of an Order-in-Council approved by His Honour the Lieutenant Governor, the 8th day of April, A.D. 1898.

Upon the recommendation of the Honourable the Attorney-General, the Committee of Council advise that Bryce Burgess Miller, of the Town of Wiarton, be appointed Fishery Overseer for the North Bruce Peninsula and the waters adjoining same, at a salary of one hundred and fifty dollars (\$150) per annum, and fifty dollars (\$50) for travelling expenses, such appointment to date from the first day of June, 1897.

Certified,

(Signed) J. LONSDALE CAPREOL,
Asst. Clerk, Executive Council.

Copy of an Order-in-Council approved by His Honour the Lieutenant-Governor, this 25th day of June, A.D. 1898.

Upon recommendation of the report of the Honourable the Attorney-General, dated 23rd June, 1898, the Committee of Council advise that one George Richardson, now undergoing a term of imprisonment of ninety days in the gaol at Burk's Falls in default of the payment of a fine of one hundred and twenty-five dollars (\$125) imposed on him for a violation of the provisions of The Ontario Game Protection Act, be released from custody, and in case of any subsequent offence the said George Richardson be required to complete the full term of imprisonment under his present sentence.

Certified,

(Signed) J. LONSDALE CAPREOL,
Asst. Clerk, Executive Council.

Copy of an Order-in-Council approved by His Honour the Lieutenant-Governor, the 15th day of December, A.D. 1898.

Upon consideration of the report of the Honourable the Commissioner of Crown Lands, dated 8th December, 1898, the Committee of Council advise that a warrant for the sum of seventy-five dollars (\$75) be issued in favor of Mr. J. E. Robertson, Toronto, Barrister-at-Law, in full, of any claim he may have for costs and disbursements in defending an action brought by John Miller & Co. against James Kennedy, Deputy Game Warden.

Certified,

(Signed) J. LONSDALE CAPREOL,
Asst. Clerk, Executive Council.

Copy of an Order-in Council approved by His Honour the Lieutenant-Governor, the 15th day of December, A.D. 1898.

Upon the recommendation of the Honourable the Commissioner of Crown Lands, the Committee of Council advise that W. B. Wells, Esq., of Chatham, be reappointed a member of the Board of Fish and Game Commissioners as from the first day of April last, and that Henry S. Osler, Esq., of the City of Toronto, Barrister-at-Law, be appointed a member of the said Board of Commissioners, also for the term commencing from the first day of April last, in the place of H. P. Dwight, Esq., resigned.

Certified,

(Signed) J. LONSDALE CAPREOL,
Asst. Clerk, Executive Council.

SHOOTING LICENSES ISSUED TO FOREIGN SPORTSMEN, 1898.

A. J. White	Syracuse, N. Y.
Charles Meredith	Montreal, Que.
Fred. L. Wanklyn	" "
John Nichols	" "
Peter McKenzie	" "
Duncan Robertson	" "
Andrew J. Dawes	Lachine, Que.
B. N. Dutton	Boston, Mass.
Alfred E. Brush	Detroit, Mich.
John T. Lord	England, Mass.
W. B. Dickerman	New York, N. Y.
H. W. Cannon	New York, N. Y.
W. M. Barnum	New York, N. Y.
Dean Sage	Albany, N. Y.
A. Hemenway	Boston, Mass.
J. L. Rhoads	Lockport, N. Y.
Gardiner G. Hammond	Boston, Mass.
A. T. Cabot	Ponkapong, Mass.
Gus. Baumler	Wyandotte, Mich.
J. H. Bishop	Wyandotte, Mich.
M. M. Stanton	Detroit, Mich.
W. J. Higham	Detroit, Mich.
Joseph Bedore	St. Clair Flats, Mich.
J. B. McKee	Detroit, Mich.
Charles Campbell	" "
P. Hutchins	" "
C. Hutchins	" "
F. Fikel	Wyandotte, Mich.
C. Rathbone	Detroit, Mich.
F. H. Walker	" "
Count Manfred	Germany.
S. Baugh	Detroit, Mich.
W. D. Thompson	" "
W. H. Nichols	New York, N. Y.
W. H. Nichols, jun.	" "
C. W. Nichols	" "
G. N. Smalley	Boston, Mass.
T. W. Sacket	Cape Vincent, N. Y.
A. E. White	Alexandria Bay, N. Y.
F. L. Northrop, jr.	Buffalo, N. Y.
G. A. Farmer	Montreal, Que.
J. Enetts Tracy	New York, N. Y.
W. Rattley	St. Clair Flats, Mich.
H. G. Meredith	Detroit, Mich.
D. W. McNangher	Pittsburg, Pa.
John S. McIntosh	" "
P. T. McCance	" "
A. Hemenway, jr.	Boston Mass.
H. R. Sweny	Albany, N. Y.
L. Cabat	Boston, Mass.
G. H. Richards	" "
—: Isaacs	Niagara Falls, N. Y.

LIST OF DEPUTY WARDENS BY COUNTIES.

Algoma.

Anderson, Alexander	Pearl River, C.P.R.
Brown, Frank	Port Arthur.
Bole, Duncan	Sault Ste. Marie.
Black, Andrew	Richard's Landing.
Congrave, Geo. (care of Hugh Munro)	Port Arthur.
Emmons, John	Rat Portage.
Fraser, D	" "
Geddes, Thomas R	Jack Fish Bay.
Gilmour, Wm	Sault Ste. Marie.
Harris, John	" "
Higgins, Wm.	Thessalon.
McKewen, S. R.	Tekkummah.
McKirdy, Wm	Nepigon.
Patterson, M. J	Weblwood.
Riley, Edward	Port Arthur.
Rush, Robert	Sault Ste. Marie.
Reid, W. D	Thompson.
Smith, Alfred Bird	Schrieber.
Whalen, Joseph	Port Arthur.
Woods, J. M.	Thessalon.
Kemp, L	Silver Lake, Manitoulin Island
Harkness, M.	Vavasour.
Craig, J	Beaver Mine.
Hymer, G	" "
Curran, T	Murilla.
Hyman, G	" "
Piper, D.	Slate River.
Wentfield, H.	Kaministiquia.
Morton, E. A	Port William.
Lalonde, E	Port Arthur.
Grattan, H	" "
Mellwraith, J	Nepigon.
Walker, J	Schrieber.
Norquay, T.	Manitowaning.
Tennant, D	Uplands.
Carmichael, A. R.	Sudbury.
Harris, W. J.	Day Mills.

Addington.

Donaldson, William J.	Donaldson's Mills.
Clancy, C. E	Enterprise.

Bruce.

Armstrong, Joseph	Kinloss.
Barley, Edward	Lion's Head.
Farquharson, John	Teeswater.
Gardiner, John H.	Lucknow.
Grey, Wesley	Chesley.
Henry, George	Port Elgin.
Henderson, James	Kincardine.
Heffernan, Patrick	Walkerton.
Hogg, Wm. W	Paisley.
Lawson, W. H.	Park Head.
Millions, Robert	Walkerton.
Manly, David	Riversdale.
McKillop, Hugh	Hepworth.
McIvor, John	McIvor.
McFarlane, Duncan	Red Bay.
McDonald, Donald	Ripley.
Pratt, John	Kincardine.
Richards, Chas. A	Tara.

Brant.

Montgomery, C. A.	Brantford.
McGlaughlin, Geo. W.	“
Irving, Robert P.	Glenmorris.

Carleton.

St. George, George	Ottawa.
Taylor, A. H.	“
Portt, Robert L.	South March.

Dufferin.

Durkin, Wm.	Bowling Green.
Gordon, James.	Monticello.
Aubbard, James J.	Orangeville.

Durham.

Carson, J.	Durham.
Jackson, T. W.	Orono.

Dundas.

Cameron, Lachlin.	Iroquois.
Price, James.	Inkerman.

Elgin.

Fairbrother, Wm.	St. Thomas.
Fowler, Jacob	Fingal.
Hannen, Isaac	Union.
Hopkins, John	St. Thomas.
Huffman, Jeremiah	Aylmer.
Hammond, John	“
Kirkpatrick, Donald	West Lorne.
Miller, Robert	Lawrence Station.
Neely, John R.	Fingal.
Philpott, Wm.	Iona.
Thornton, Henry	St. Thomas.
Gardiner, H.	Morpeth.
Chute, Ernest A.	Lakeview.
Goodall, James.	Wallacetown.

Essex.

Ontago, Daniel.	Sandwich.
Banks, Anthony	Harrow.
Cornette, Chas. F.	Belle River.
Teller, Wolfe.	Walkerville.
Gignac, Horace.	Gordon.
Gormley, John.	Essex.
Holland, Hugh.	Comber.
Hillman, Jonas.	Hillman.
Ives, Arthur.	Leamington.
King, George.	Ruthven.
Lindsay, William.	Comber.
Lemaitre, Seraphim.	Tecumseth.
Marters, Allios.	Sandwich.
Meloche, Joseph.	“
Robert, Joseph.	“

Rivard, Napoleon.....	Tecumseth.
Soulliere, Stephen.....	“
White, James H.....	Pelee Island.
Walker, Noll.....	St. Joachim.
Louchereau, Stephen.....	St. Clair Siding.
Mills, Chas.....	Wheatley.
Hugill, W.....	Staples.
Solmone, C.....	Amherstburg.
Fontine, W.....	Fighting Island.

Frontenac.

Albertson, George.....	Verona.
Brickwood, James H.....	Kingston.
Clark, Norman.....	Mississippi.
Parcy, Sydney W.....	Murvale.
Dermott, J. A.....	Tichborne.
Dowker, Wm. S.....	Harrowsmith
Gilbert, Robert.....	Ompah.
Gates, George.....	Westbrook.
Greenwood, George.....	Wolfe Island.
Pallier, Alexander.....	Wilmur.
Smoke, Edward H.....	Desert Lake.
Smith, David John.....	Parham.
Sly, Henry.....	Verona.
Tryon, Levi.....	Sharbot Lake.
Tallon, James.....	Arden.
Walker, Nelson.....	Cataraqui.
Woods, J. M.....	Arden.
Woodman, W. G.....	Allen (Wolfe Island).
York, E. M.....	Bellrock.

Grey.

McKnight, Thomas.....	Dornach.
Campbell, Malcolm.....	Hanover.
Holmes, Geo. B.....	Markdale.
Long, William.....	Kolapore.
Simmons, M. H.....	Oxenden.
Leigman, Ludwig.....	Neustadt.
Wilson, William H.....	Shouldice.
Myers, J.....	Orchard.
Munshaw, P.....	Eugenia.
Webb, J.....	Vandeleur.
Hickling, J.....	Maxwell.
Peterson, W. H.....	Dundalk.
Tedford, J.....	“

Glenarry.

Clark, James.....	Dominionville.
Dickson, Daniel.....	Williamstown.
Dunn, Ambrose.....	South Lancaster.
McGillivray, Donald W.....	Dalkeith.
McNaughton, J. P.....	Laggan.
McRae, Donald C.....	North Lancaster.
Stewart, M. W.....	Greenfield.
Pepin, E.....	Bainsville.
Sutherland, Hugh.....	“

Hastings

Barr, Peter.....	Maynooth.
Brinklow, Henry.....	Ormsby.
Birrel, James.....	Glanmire.

Bowel, W. J.	Tweed.
Faulkner, Dr. D. W.	Foxboro.
Faulkner, Dr. G. W.	Stirling.
Foster, Alexander	Egan Creek.
Rupert, Thomas	Springbrook.
Sweet, W. H.	Bancroft.
Sweet, W. James	Bancroft.
Tivy, Richard S.	Coe Hill.
Unwin, Walker	Bannockburn.
Hubbell, B. C.	Marmora.
Taylor, J.	Murchison.

Halton.

Bradley, Stinson	Milton.
Brown, Robert M.	Campbellville.
Crawford, Murray	Campbellville.
Johnston, Walter N.	Milton.
Lawson, John	Acton.
Racey, C. S.	Milton.
Saunders, Edward G.	Agerton.
Wilson, James	Bronte.
Hewson, G.	Milton.

Huron.

Creech, James	Exeter.
Dalton, Morgan	Kingsbridge.
Gill, John	Exeter.
Horton, George	Gorrie.
Naftal, Chas. J. S.	Goderich.
Rider, J.	Clinton.
Ross, John M.	Blyth.
Sands, John	Salford.
Seager, Charles	Goderich.
Scott, Alex.	Westfield.
Watt, R.	Brussels.
Anderson, J. A.	Seaforth.
McKay, Peter	Chiselhurst.
Foster, Byron	Holmesville.

Haliburton.

Day, Joseph	Essonville.
Cassidy, J.	Dorset.
Hamilton, W. J.	Dorset.

Haldimand.

Chrysler, Robert	North Cayuga.
Everingham, Wm.	Canfield.
Farrell, John	Cayuga.
Winslow, Martin	Dunnville.

Kent.

Boles, Gordon	Chatham.
Crouch, Samuel	Ridgetown.
Eberts, Frank G.	Chatham.
Johnson, W. J.	Fargo.
Gardiner, Isaac	Morpeth.
Kime, George	Big Point.
Monday, Frederick	Mitchell's Bay.

Robertson, Victor.....	Chatham.
Southgate, R. M.....	Wallaceburg.
Thomas, Joseph.....	Williams.
Fisher, B.....	Wallaceburg.
McGregor, J. D.....	Chatham.
Dagneau, David.....	Chatham.
Waffle, Noah.....	Dresden.
Grieves, L. D.....	Rond Eaw.

Lambton.

Bell, John.....	Port Franks.
Deans, James.....	Inwood.
Everest, G. M.....	Arkona.
Kennedy, Joseph.....	Port Lambton.
Miller, Frank.....	Port Franks.
Mott, Edwin L.....	Alvinston.
Myers, S.....	Port Lambton.
Taylor, J. P.....	Watford.
Mountain, H.....	Walpole Island.
Sarvis, A. E.....	Sarnia.

Lanark.

Deacon, Ephraim.....	Bolingbroke.
Farnall, William.....	Smith's Falls.
Mair, David.....	Lanark.
Millford, R.....	Carp.
Patterson, J. R.....	Christie Lake.
Gardner, W.....	McDonalds Corners.

Leeds.

Bilton, George.....	Newboro.
Gibson, John R.....	Mallorytown.
Lappin, J. J.....	Westport.
Murchie, Robert.....	Wilstead.
Smith, Justus.....	Charleston.
Sly, Lester.....	Morton.
Sliter, A. E.....	Morton.
Stone, W.....	Gananoque.
Mathen, H.....	Brockville.
Brown, H. W.....	Gananoque.

Lennor.

Hull, Hiram W.....	Napanee.
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Lincoln.

McPherson, James.....	St. Am's.
Kennedy, C. A.....	Smithville.
Randall, N. L.....	Grimsbv.

Middlesex.

McCann, Peter.....	London.
Beverly, John.....	Dorchester Station.
O'Neil, W. H.....	Dorchester.
Ralph, Thos. J.....	Ballymote.
Ward, R. W.....	London West.
Williams, Alfred M.....	Lobo.
Foreman, J.....	Dorchester Station.
Heney, J.....	London West.
Atkinson, F.....	Ailsa Craig.
Dafoe, W.....	Avon.

Monck.

Moore, Daniel..... Perry Station.

Muskoka.

Kerr, J..... Bala.
 Butler, C. F..... Point Kaye.
 Brooks, Edgar, Jr..... Huntsville.
 Berry, William..... Walkers' Point.
 Bradley, Enos..... Beaumaris.
 Stromberg, N..... Torrance.
 Crompton, W. B..... Aspdin
 Dart, Stephen..... Dorset.
 Davidson, E. M..... Brackenrig.
 Foreman, Walter..... Port Carling.
 Gouldie, E. J..... Dwight.
 Gohm, William..... Bracebridge.
 Grenke, Gustav..... Rosseau.
 Henderson, Charles..... Bracebridge.
 Harbour, Joseph..... White-side.
 Hey, Joseph..... Bracebridge.
 Paget, George..... Huntsville.
 Smith, J. D..... Kilworthy.
 Stephens, George..... Shannon Hall.
 Shannon, Peter..... Port Carling.
 Traves, Elias H..... Fraserourg.
 Silk, C..... Torrance.
 Thornton, Richard..... Huntsville.
 Wood, Michael..... Clevelands.
 Warne, Francis P..... Bracebridge.
 Wardell, John..... Bracebridge.
 Easton, R. T..... Whitoff.
 Hays, J..... Parry Sound.
 Harrison, J..... Whitstone.
 Smith, R..... Golden Valley.
 Traves, T..... Fraserburg.
 Hollingshead, Walter M..... Bracebridge.
 Parlett, Geo..... Bracebridge.
 Torance, W..... Muskoka Mills.
 Weir, James..... Utterson.

Norfolk.

Baker, Huit..... Windham Centre.
 Brown, Isaiah..... Port Rowan.
 Barrett, A. P..... Port Royal.
 Dowswell, John..... Lynedoch.
 Ewing, Alex. B..... Waterford.
 Fick, Jerome B..... Port Dover.
 Hambley, William E..... Rockwood.
 Kramer, Conrad..... Delhi.
 Randall, Robert..... Bookton.

Northumberland.

Diamond, T..... Cobourg.
 Field, Cyrus W..... "
 Fairbanks, Chas. S..... "
 Merrian, H. N..... Harwood.
 Row, George..... Murray P. O.
 Weblock, James..... Bensfort.
 Wallace, Thomas..... Gore's Landing.
 Hicks, E. C..... Baltimore.
 Terrill, Eli..... Wooler.
 Mills, C..... Warkworth.

Nipissing.

Armstrong, John	Thornloe.
Bailey, John	North Bay.
Garrow, E	Nipissing Junction.
Huntington, S. A.	North Bay.
Jessup, Robert	Nipissing.
Smith, E.	Whitney.
Perant, I.	Bonfield.
Hill, W.	Rutherglen.
Rowland, J. S.	Sturgeon Falls.
Stoddart, T.	Copper Cliff.
Maloney, Theo.	Sudbury.

Oxford.

Cuthbert, George	Woodstock.
Huntingford, Henry	Woodstock.
Martin, Richard	Woodstock.
Tisdale, J. E.	Woodstock.
Thornton, J. B.	Woodstock.
Edwards, W., Jr	Sweaborg.

Ontario.

Woodworth, Daniel	Cannington.
Bagshaw, Abed E.	Vroomanion.
Frankish, F. M.	Uxbridge.
Hall, Maxwell	Longford Mills.
Sniber James	Longford Mills.
Gordon, John	Pickering.
Henry, T. S.	Cadardale.
Miller, Arthur	Seagrave.
McGrath, Michael	Beaverton.
McDermott, George	Port Perry.
Pettit, George	Port Perry.
Sutcliffe, James	Prince Albert.
Williams, Charles	Glen Major.
Remey, J. W.	Dorset.
Crandall, M. L.	Port Perry.
Steele, J.	Uptergrove.
Pringle, J. H.	Cooper's Falls.

Prince Edward.

Lake, Stephen	West Lake.
Rorabeck, Athol	Crofton.
Sprague, George G.	Demorestville.

Peterborough.

Moore, F. J.	Lakefield.
Moore, D. H.	Peterborough.
McWilliams, J. B.	Peterborough.
Smith, J. W.	Peterborough.
Wedlock, Wm.	Keene.
Crow, C.	Stoney Lake.
King, Noah	Havelock.
Lundy, R. B.	Stoney Lake.

Parry Sound.

Burns, C. W.	Trout Creek.
Butler, Clarence	Trout Creek.
Carmichael, William	Powasson.

Doupe, Sydney	Lawrence Mills.
Draycott, F. W.	Ashdown.
Fry, Arthur	Seguin Falls.
French, Benjamin	Dunchurch.
Groom, Henry	Kearney.
Hall, Wm. H.	Sprucedale.
Johnson, John A	Parry Sound.
Le Brash James P	Maple Island.
Mainprize, N.	Golden Valley.
Mitchell, Robert	Cecebe.
McDonald, Arch	Sundridge.
McDermott, G. Benj	Sundridge.
McGowan, Wm	Parry Sound.
McAmond, Wm	Dunchurch.
Ricker, David	Commanda.
King, J	Parry Sound.
Brown, Duncan	Starrat.

Prescott.

Bonville, Leon	St. Isidore de Prescott.
Barrett, John	Turnier.
Cunningham, A.	Wendover.
James, Richard	Alfred.
La Belle, Leonee	Curran.
LeRoy, Raloh	Barb.
La Faivre, Hercule	Le Faivre.
Marston, Lewis F	L'Original.
Martineau, Joseph	Alfred.
McKercher, Peter	L'Original.
St. Pierre, Pierre	St. Eugene.
Taneck, Sonis	Riceville.

Peel.

Rayburn, John	Caledon.
Walterhouse, Edward	Cooksville.

Perth.

Climie, W	Listowel.
Wilton, R	Stratford.

Renfrew.

Brady, John	Renfrew.
Biggs, William E	Pembroke.
Briggs, Aaron	Pembroke.
Coffey, Wm	Pembroke.
Halliday, James	Springtown.
Johnson, S. M	Arnprior
Kennedy, John	Pembroke.
McCagherty, P.	Pembroke.
McDonald, Alex	Pembroke.
McFarlane, A	Calabogie.
Plant, Xavier	Renfrew.
Smith, Robert R	Egsville.
McLaren, J	Smoke River.
Yull, Walter	Calabogie
George, W	Barry's Bay.

Russell.

Stewart, Peter	Grant.
McCallum, D.	Cumberland.
Dupius, A.	Embrun.

Simcoe.

Bathie, Edward	Cookstown.
Beardsley, Alfred W.	Barrie.
Coombs, John	Lovering.
Chapman, James	Cookstown.
Filday, George	Cookstown.
Hines, John	Barrie.
Kearns, George	Ivy.
Kitchen, Joseph	Lovering.
Muir, John	Cookstown.
McLaughlin, James	Anten Mills.
Primrose, Alex.	Apto.
Pollock, Thomas	Cookstown.
Ross, Joseph	Cookstown.
Regan, John	Orillia.
Rawson, Wm.	Coldwater.
Somerville, David	Stayner.
Upton, George	Nicholston.
Wilson, J. J.	Fesserton.
Staunton, T.	Hamlet.
Laughlin, T.	New Lowell.
Reid, E.	Everett.
Campbell, J.	Ragged Rapid.
Peckman, G. C.	Alliston.
Cheesman, B. C.	Stayner.
Wood, P. V.	Port Severn.
Lynn, Wm.	Penetanguishene.
Pratt, W.	Midland.
Watson, T. A.	Creemore.
Nixon, Chris	Elmvale.
Johnson, T.	Lovering.
Davidson, J.	Brentwood.
Lowdon, H.	Penetanguishene.
McNiven, D. A.	Barrie.
Doner, J. B.	Creemore.

Victoria.

Bowins, Charles	Coboconk.
Crowe, Nathaniel	Bobcaygeon.
Dewdney, Arthur	Bobcaygeon.
Daniel, John	Balsam.
Ellis, J. A.	Fenelon Falls.
Galloway, David	Moore's Falls.
Harris, Noxon	Bobcaygeon.
Junkin, James	Fenelon Falls.
Lysh, William	Bobcaygeon.
McArthur, Donald	Manilla.
Silverthorn, George	Balsam.
Ray, John	Kirkfield
Amberg, Claes	Bobcaygeon.
Bryan, Benj.	Lindsay.

Welland.

Augustine, Elias	Stonebridge.
Barkhart, Geo.	Sherkston.
Beam, Horace H.	Black Creek.
Griffin, Richard	Fort Erie.
Hersley, Milford	Garrison Road.
Miller, Chas. A.	Black Creek.
Michener, Cyrenus	Ridgeway.
Neff, Peter	Marshville.
Nixon, J. C.	Welland.
Rose, Charles, jr.	Garrison Road.
Risley, E. E.	International Bridge.

Wentworth.

Gallin, Warren	Waterdown.
Raspberry, Wm.	West Flamboro'
Graham, H.	Hamilton.
Hazell, J.	Hamilton Beach.
Anderson, H. J.	Bartonville.
Dills, Wm. W.	Attercliffe.
Morden, E. L.	Greensville.
Randal, R. W.	Hamilton.

Waterloo.

Bulmer, George	Elmira.
Devitt, John	Waterloo.
Fraser, Alex	New Hamburg.
Gillier, Peter	Galt.
Gress, Philip	Blair.
Hall, James	Hawksville.
Mengers, William	St. Jacob's.
Mayers, Frederick	Bridgeport.
Mickers, Joseph	Heidleberg.
McMaster, Thomas	Hespeler.
Stark, John	Hespeler.
Springess, Joseph	Kossuth.
Gammon, W. E.	Ayr.
Riddell, W.	Ayr.
McCrudden, Robt.	Galt.
Hurthmg, Carl	Perlin.

Wellington.

Gilchrist, John W.	Gillean.
Hull, Wellington	Erin.
Love, James	Guelph.
Lang, George	Hillsburg.
Robertson, Thos.	Kilean.
Stewart, Donald	Crieff.
Smith, George	Eden Mills.
Stovel, Thomas	Mount Forest.
Williams, Henry M.	Guelph.
Landoni, L.	Dracon.
Robertson, C.	Hillsburg.
Black, T.	Elora.
Ireland, Dr.	Harriston.

York.

Hope, W. B.	Toronto.
Tidsberry, James L.	Coleman.
Kennedy, James.	Toronto.
Blea, D.	Humber Bay.
Sanderson, W. H.	Toronto.
Humphrey, P.	Toronto.

Province of Quebec.

*Crowley, E. B.	Montreal.
*Finnie, Dr. J. T.	Montreal.

*These officers have been especially appointed to enforce the Game Laws on Lake St. Frances, which is partly in Ontario and partly in Quebec.

ISSUER OF SETTLERS' PERMITS, 1898.

Townsh'p.	Name of Clerk.	Address.
Muskoka :		
Morrison	William Young	Severn Bridge.
Ryde	W. Tingey	Germania.
Oakley	A. Cooke	Vankoughnet.
Draper	David Cairns	Uffington.
Muskoka	R. E. Suttaby	Gravenhurst.
Wood	United to Medora	
Baxter		
Gibson		
Medora	H. C. Guy	Dudley.
Monck	W. H. Spencer	Bracebridge.
Macauley	Wm. Cohen	"
McLean	A. Slemont	Baysville.
Ridout	United to McLean	
Franklin		
Brunel	H. Farnsworth	Emberson.
Stephenson	D. Bain	Utterson.
Freeman		
Watt	Wm. Sword	Beatrice.
Cardwell	M. Wilson	Rosseau.
Strided	Thos. Lakeman	Aspin.
Chaffey	Wm. Clarke	Huntsville.
Sinclair		
Parry Sound :		
Mowat		
Blair		
McConkey		
Hardy		
Patterson		
Wallbridge		
Brown		
Wilson		
Mills		
Pringle		
Nipissing	William Haltby	Nipissing.
Gurd		
Himsworth, N	W. S. Ellis	Callendar.
Himsworth, S	James Burke	Trout Creek.
Harrison		
Burton		
McKenzie		
Ferrie		
Lount		
Machar	Richard Cole	South River.
Laurier		
Burpee	D. J. Bailey	Evansville.
Hagerman	F. N. McFie	Dunchurch.
Croft		
Chapman	Jos. Wilson	Magnetawan.
Strong	John Carter	Sundridge.
Joly	Jos. Peacock	Vavasour.
Carling		
Ferguson		
McDougall	D. McFarlane	Parry Sound.
McKellar	G. B. Lee	McKellar.
Spence		
Ryerson	E. Geddes	Midlothian.
Armour	Alexander Mackie	Burk's Falls.
Proudfoot		
Foley	A. Oastler	Featherston.
Christie	Wells Thompson	Orrville.
Monteith		
McMurrich	Thomas Upton	Spencedale.
Perry	C. B. Clearwater	Scotia.
Bethune		
Conger		
Humphrey	Wm. Ditchburn	Rosseau.

ISSUER OF SETTLERS' PERMITS.—Continued.

Township.	Name of Clerk.	Address.
Bruce :		
Albemarle	C. E. Wicher	Colfof's Bay.
Eastnor	C. W. W. Dalton	Lions Head.
Lindsay	Thos. German	Dy. r's Bay.
Co. Ontario :		
Rama	John Waldron	Fawn.
Victoria :		
Eldon	Alfred Taylor	Victoria Road.
Dalton	A. Montgomery	Sebright.
Digby	Wm. Maxwell, united to Longford and Laxton	Head Lake.
Laxton	See Digby .....	.....
Carden	John Walsh	Kirkfield.
Somerville	Samuel Suddaby	Burnt River.
Bexley	Thomas Winter	Coboconk.
Snowdon	A. H. Brandon	Gelert.
Co. Haliburton :		
McClintock and Stanhope	Wm. Cooper	Boskung.
Livingstone	"	"
Sherbourne	J. B. Shrigley	Dorset.
Lawrence	Wm. Cooper	Boskung.
Nightingale	"	"
Havelock	"	"
Hindon	"	"
Anson	T. H. Rogers	Minden.
Minden	W. S. Morrison	"
Guilford	W. Prust	Haliburton.
Dysart	"	"
Eyre	"	"
Clyde	"	"
Bruton	"	"
Harborn	"	"
Harcourt	"	"
Dudley	"	"
Lutterworth	J. H. Hulbig	Minden.
Snowdon	E. B. Munn	"
Glamorgan	D. Williams	Irondale.
Monmouth	J. H. Anderson	Tory Hill.
Cardiff	A. W. Willis	Deer Lake.
Peterborough Co. :		
Galway	P. Collins	Mt. Irwin.
Cavendish	"	"
Anstruther	P. W. C. Shewan	Apsley.
Chandos	J. W. Ratcliff	Lasswade.
Harvey, N. $\frac{1}{2}$	J. S. Cairnduff	Bobcaygeon.
Burleigh	United to Anstruther .....	.....
Methuen .....	" .....	.....
Belmont, N. $\frac{1}{2}$	Porter Preston	Blairton.
Belmont, S. $\frac{1}{2}$	Wm. Mathieson	Havelock.
Hastings Co. :		
Maclure	United to Bangor .....	.....
Wicklow .....	" .....	.....
Bangor	D. Card	Maynooth.
Herschel .....	" .....	.....
Monteagle	John Spence	Hybla.
Carlow	W. D. Parkhurst	Boulter.
Faraday	Frederick Mullett	Bancroft.
Dungannon	James Spurr	L'Amable.
Mayo	Robt. Ramsbottom	Hermon.
Wollaston	Geo. Orr	Coe Hill Mines.
Limerick	Jas. W. Ham	St. Ola.
Cashel	United to Tudor .....	.....
Lake	United to Marmorra .....	.....
Tudor	Charles Donaldson	Millbridge.
Grimsthorpe	United to Elzevir .....	.....
Marmorra N. $\frac{1}{2}$	H. M. Jones, M. D.	Marmorra.
Madoc, N. $\frac{1}{2}$	J. R. Ketcheson	Madoc.
Elzevir, N. $\frac{1}{2}$	R. W. Miller	Actinolite.

ISSUER OF SETTLERS' PERMITS.—*Concluded.*

Township.	Name of Clerk.	Address.
Lennox and Addington :		
Ashby	Paul Stein	Denbigh.
Denbigh	"	"
Effingham	"	"
Abinger	"	"
Anglesea	M. Lessard, jr.	Flinton.
Kaladar	"	"
Frontenac Co. :		
Barrie	Thomas Nerle	Cloyne.
Miller	United to Clarendon	
North and South Canonto	J. Elkington	Ompah.
Palmerston	L. Allan	Mississippi Sta.
Clarendon	A. W. Wood	Plevna.
Kennebec	A. Osborne	Arden.
Olden	W. M. Price	Mountain Grove.
Oso	S. C. Bourk	Oso Station.
Lanark Co. :		
Levant	J. M. Browning	Levant.
Darling	A. Watt	Lloyd.
North Sherbrooke	W. Geddes	McDonald's Corners.
Renfrew Co. :		
Petewawa	Geo. Guestin	Petewawa.
McKay	Not organized	
Burns	United to Hagarty	
Richards	"	
Lyndock	United to Brudenell	
Fraser	J. M. Kennedy	Pembroke.
Alice	"	
Griffith	John Holly	Balvenie.
Jones	United to Hagarty	
Sherwood	"	
Brougham	Michael Sheedy	Sheedy.
Hagerty	T. Roche	Rochefort.
Algona	E. Bennett	Castile.
Matawatchan	United to Griffith	
Wilberforce	Geo. Stone	Eganville.
Radcliffe	J. E. N. Miller	Combermere.
Blithefield	M. Ryan, united to Bagot	Ashdod.
Brudenell	John Whelan	Brudenell.
Sebastopol	Carl Walther	Vanbrugh.
Grattan	Wm. Gorman	Eganville.
Raglan	United to Radcliffe	
.....	J. B. McWilliams	Peterborough.
.....	John Brown	Rockdale.

REPORT OF CASES

District or county.	Name of prosecutor.	Date, 1897.	Name of offender.	Address.	Offence charged.
Parry Sound.		Jan. 13.	J. Gray	Armour Tp.	Illegal possession of venison.
do		do 12.	S. Jordan	do	do
Nipissing.	J. H. Willmott	do 19.	Antoine LeGros	Beaumarge	Illegal possession of moose.
do	do	do 19.	Joseph LeGros	do	do
do	do	do 19.	Joseph Restoul	do	do
Simcoe	John Hines	do 26.	— Goffatt	Orillia	Illegal possession of moose hides.
Muskoka	R. S. Smith	Feb. 11.	Wm. Hood	Baysville	Netting illegally
do	do	do 11.	do	do	Trapping
do	Nils Stromburg	do 11.	J. Beer	Gravenhurst	Illegal possession of venison.
Parry Sound.	J. P. Labrash	do 23.	John Argus		
Georgian Bay.					
Algoma	J. H. Willmott	May 15.	— Jackman	Killarney	Illegal possession of fur.
Muskoka	do	do 19.			
do	Nils Stromburg	do 22.	Wm. Mullen	Tp. Wood	Illegal possession of venison.
do	R. D. Brown	Aug. 28.	Mark Bailey	Tp. Stisted	Hunting out of season
do	do	do 28.	Thomas Bailey	do	do
do	do	do 28.	Richard Bailey	do	do
do	do	do 28.	John Patterson	do	do
do	do	do 28.	Wm. Patterson	do	do
do	do	do 28.	Richard Patterson	do	do
do	do	do 28.	Amos Barrager	do	do
Parry Sound.	J. H. Willmott	Nov. 10.	Thomas Stocker	Collingwood	Illegal possession of moose.
Muskoka	J. P. Labrash	Sept. 15.	R. Harrison	Whitestone	Illegal possession of otter skin.
Haldim'nd.	J. A. Gill	Feb. 2.	W. Hair	Buffalo	Shooting without license.
do	do	June 16.	Mr. Smidth	Sherkston	Collecting eggs without license.
Norfolk	do	Nov. 13.	C. Prew	Port Rowan	Shooting off a sunken punt.
do	do	do 13.	J. Smith	do	Shooting off a sunken punt.
do	do	do 13.	Wm. Smith	do	Shooting off a sunken punt.
Welland	do	Nov. 28.	D. Isaac	Clifton	Shooting without a license.
Muskoka	J. P. Labrash	Mar. 4.	W. Mullin	Unknown	Killing otter
do	do	Nov. 25.	G. S. Mitchell	do	Hunting on Sunday.
do	do	do 29.	John McCall	Parkhill	Killed more deer than allowed.
Grey	James Myers	April 17.	J. L. Brown	Holstein	Hunting out of season.
do	do	May 21.	A. S. Clark	Mt. Forest	Fishing in a stocked stream and trespassing.

FOR YEAR 1897.

Was offender arrested or summoned	Where tried.	Name of Magistrate.	Result of case.	Nets, traps or illegal appliances seized during season of 1897.
Summoned..	Kearney	{ R. M. Conkey } { J. Rattenbury } { J. H. Willmott }	Dismissed with costs.	
do	do	do	do	
Arrested ...	North Bay	Judge Doran	Dismissed with a caution, being an Indian.	
do	do	do	do	
do	do	do	do	
Summoned..	Orillia	{ P. W. Lafferty } { J. H. Willmott }	Judgment reserved — afterwards dismissed on account of certificate accompanying skins	
do	Baysville	J. H. Willmott	Dismissed	
do	do	do	do	
do	Gravenhurst	do	Judgment reserved	
			Fined \$10	
				Seized moose robe on the Steamer Northern Belle; restored it to owner subsequently on satisfactory ownership being produced.
do		J. H. Willmott	Fined \$5	
do	Beaumaris	J. H. Willmott	Fined \$10.	Confiscated net on Lake Muskoka.
do	Bracebridge	{ Jas. Boyer and } { J. H. Willmott }	Fined \$20 or sixty days.	
do	do	do	do	
do	do	do	do	
do	do	do	do	
do	do	do	do	
do	do	do	do	
do		J. H. Willmott	Fined \$25	
do	Dunchurch	Wm. Robertson	Fined \$5	
		J. H. Willmott		Seized nine trap nets in Georgian Bay. They were afterwards returned on account of Dominion Government licensing trap nets.
Summoned .	Buffalo	J. A. Gill	Fined \$12	
Arrested ...	Sherkston	do	Fined \$10 and costs.	
Summoned .	Port Rewan	do	Fined \$5	
do	do	do	Fined \$5	
do	do	do	Fined \$5	
do	Clifton	do	Fined \$25	
do	Dunchurch	Wm. Robertson	Fined \$20	
do	do	do	Fined \$20	
do	do	do		
Arrested ...	Holstein	Ira Pennock	Released with warning.	
Summoned .	Ayton	W. H. Ryan	Settled by paying \$5 costs.	

REPORT OF CASES FOR

District or county.	Name of prosecutor.	Date, 1897.	Name of offender.	Address.	Offence charged.
Grey	James Myers	May 21..	Wm. Roberts	Mt. Forest.....	Fishing in a stocked stream and trespassing.
do	do	do 28..	Ben. McKenzie	Dromore	Trespass and fishing on the Holstein reserve.
do	do	July 20..	Wm. Dickson	Mt. Forest	Trespassing on London reserve.
Algoma ...	Thomas Norquay .....	.....	.....	.....	.....
Muskoka ..	Elias H. Traves	Nov. 6..	Albert L. Post	Wallaceburg	Hunting without license.
do ..	do	do 10..	Neil H. McPhayden	Oakwood	Hunting without license.
do ..	do	do 18..	James Schell	Gravenhurst.....	Killing deer during close season.
do ..	Francis P. Warne	do 1..	.....	Bracebridge .....	.....
Peterboro' Welland ..	C. Crowe .....	.....	Unknown	Stony Lake .....	.....
do ..	Geo. Barnhart	June 13..	Otmer Rineca & Son.	Buffalo	Birds' egg lifting....
do ..	do	do 13..	Peter Zesh	do	do
Essex	Anthony Banks ..	Dec. 10..	William Hase	Harrow	Shooting on Sunday.
Middlesex ..	James Hevey .....	.....	.....	London .....	.....
Algoma	James Whalen.....	Oct. 14..	M. Litterman	Murillo	Selling caribou ..
Muskoka..	Joseph Hey	Dec. 10..	Wm. Browne.....	Bracebridge	Hunting partridge in close season
Muskoka ..	Joseph Hey	Dec. 10..	S. Nichols	Bracebridge	Hunting deer in close season.
do ..	do	do ..	F. Jackson	do	Hunting deer in close season.
Algoma ...	D. Bole	Jan. 27..	John Aenas	Unknown	Offering beaver skins for sale.
do	do	Oct. 18..	Louis Lappa	Detroit.....	Fishing with net without a license.
Simcoe	J. Daniel Smith	Dec. 3..	.....	.....	.....
do	do	Nov. 4..	.....	.....	.....
Leeds	A. E. Sliter.....	April 26..	Chas. Dawson	Morton	Killing otter
Muskoka ..	Nils Stromberg	June	John Mullin	Torrance	Illegal possession of venison.
Dundas ...	James Price.....	Sept. 18	Albertus Marquette.	Inkerman	Fishing by torchlight
do	do	do	Ezra Baldwin	do	do
Brant	C. A. Montgomery ..	April 25..	Albert Summerhayes	Brantford	Catching pickerel during close season
Frontenac ..	J. H. Brickwood	May 22..	D. Vroman	Murvale	Violation of Fisheries Act.
do ..	do	June 15..	F. Stafford	Newboro'.....	Violation of Fisheries Act.
do ..	do	June 17..	Thos. McGuire ..	Kingston	Violation of Fisheries Act.
do ..	do	Aug. 25..	Col. H. Smith.....	do	Shooting duck
do ..	do	Aug. 30	J. Dunlop	do	Shooting insectivorous birds.
do ..	do	Nov. 25..	H. Smith	Sharbot Lake	Killing deer in water
do ..	do	Nov. 26..	John Smith	do	do

YEAR 1897.—Continued.

Was offender arrested or summoned.	Where tried.	Name of Magistrate.	Result of case.	Nets, traps or illegal appliances seized during season of 1897.
Summoned	Ayton	W. H. Ryan	Settled by paying \$5 costs.	
do	Holstein	Ira Pennock	Refused to pay fine, sent 6 days to gaol.	
do	Ayton	W. H. Ryan	Fined \$1 and costs	
Arrested	Oakley	Jos. E. Rogers	Fined \$30 and costs	Seized 500 yds. gill nets, destroyed them; found Jack light and spear, threw both in lake.
do	do	do	Fined \$20 and costs	Seized one rifle, sent it to Chief Warden.
Summoned	Gravenhurst	Kimber Johns	Dismissed	Seized one rifle, sent it to Chief Warden.
Arrested	Fort Erie	Jas. Logan	Let go on suspended sentence.	Seized one live doe fawn, shipped without coupon.
do	do	do	Let go on suspended sentence.	Seized 200 feet of gill net.
Summoned	Harrow	John Richmond	Fined	Seized sixty eggs.
Arrested	Port Arthur	W. C. Dobie	Fined	Seized one scoop net, destroyed it.
do	Bracebridge	James Boyer	Fined	
Arrested	Bracebridge	James Boyer	Dismissed	
do	do	do	do	
				Skins seized and sent to Chief Warden.
				Net destroyed.
				Seized 5 traps, still in my possession.
				Seized one spear, still in my possession.
Information laid.	Settled without trial.		Paid \$5 and costs.	
Summoned	Beaumaris	J. H. Willmott	Fined \$10	
do	Winchester	Wm. Bow	Fined \$10 and costs	
do	do	do	do	
do	Brantford	Thos. Woodyatt	Dismissed with warning.	
do	Portsmouth	D. J. Walker	Fined \$10 and costs.	
do	Kingston	do	Fined \$10 and costs.	Oct. 15. Seized some traps belonging to Indians, returned them on their promising to stop.
do	do	John McKelvie	Fined \$5 and costs.	
do	do	D. J. Walker	Fined \$5	Oct. 23. Destroyed 11 traps set for muskrats in Rideau Canal.
do	do	do	Fined \$5 and costs.	
do	Sharbot Lake	H. K. Smith	Dismissed	Aug. 15. Broke up a punt used by parties illegally duck shooting.
do	do	do	Withdrawn on paying costs of case.	

REPORT OF CASES FOR

District or County.	Name of prosecutor.	Date. 187.	Name of offender.	Address.	Offence charged.
Carleton ..	Harry Head	Jan. 8.	Robert Farmer, Sr.	Eastman Springs.	Hunting with fire-arms and refusing to produce license when demanded.
do ..	do	do ..	John Preston	do ..	Hunting with fire-arms and refusing to produce license when demanded.
Grey	Peter Munshaw	Oct. 12.	Robert Gorley	Eugenia	Setting out poison ..
Lambton ..	A. E. Sarvis	Oct. 12.	Adam Rehor	Port Huron, Mich	Duck shooting from sail boat.
do ..	do	do ..	Carroll Shutlack	do ..	Duck shooting from sail boat.
do ..	do	do ..	Herbert Kay	do ..	Duck shooting from sail boat.
Essex	John Gormley. ....	.....	Thomas Greaves	Essex	Shooting out of season.
Nipissing ..	S. A. Huntington ..	Jan. 4.	Henry Young	North Bay	Having moose meat in possession.
do ..	do ..	Feb. 6.	Joe Jocks	do ..	Having moose meat in possession.
do ..	do ..	Feb. 6.	Jos. Restoul	do ..	Having moose meat in possession.
do ..	do ..	Feb. 6.	Henry Jocks	do ..	Having moose meat in possession.
do ..	do ..	Mar. 9.	Charles Thom	do ..	Having moose meat in possession.
do ..	do ..	Oct. 8.	J. Belden	Syracuse, N. Y.	Shooting without license.
do ..	do ..	Oct. 8.	A. S. White	do ..	Shooting without license.
do ..	do ..	Nov. 3	L. Jodoin	Bonfield	Running dogs in close season.
Muskoka ..	W. B. Crompton	Nov. 2 ..	John Sherlock	Toronto ..	Hunting without license.
do ..	do ..	Nov. 4 ..	George Hopper.	do ..	Hunting without license.
do ..	do ..	Nov. 4 ..	Wm. Smith	do ..	Hunting without license.
Halton	James Wilson	Dec. 1 ..	.....	.....	.....
Carleton ..	Robert L. Portt	Oct. 22 ..	Alex. Stewart	Hull	Violating game laws
do ..	do ..	do ..	Napoleon Lachance.	Ottawa ..	Hunting on Sunday.
do ..	do ..	do ..	Peter Charboneau ..	do ..	do ..
do ..	do ..	do ..	M. Labrine	Aylmer, Que.	Hunting in Ontario.
Hastings ..	Walker Unwin	May 10 ..	Percy Ayre	Toronto ..	Shooting partridge..
do ..	do ..	do ..	do ..	do ..	Hunting on Sunday.
do ..	do ..	Oct. 1 ..	Thomas Cleveland ..	Tudor ..	Killing deer
do ..	do ..	do ..	Aquilla Hanna	Madoc ..	do ..
Leeds	Lester Sly	Jan. 13 ..	.....	.....	.....
Peterboro'. ..	J. B. McWilliams	Nov. 13 ..	Justin Vader	U. States	Shooting in Ontario.
Grey	James Carson	June ..	Hugh McKay	Durham	Fishing
Halton	John Hazell	do ..	John Filman	Co. Halton	Shooting ducks in close sea-on.
do ..	do ..	do ..	Wm. Clanky	Burlington	Shooting ducks in close season.
Wellington ..	Colin Robertson	Dec. 1 ..	.....	.....	.....
Simcoe	Robert R. Smith	Mar. 18 ..	.....	.....	.....

REPORT OF CASES FOR

District or County.	Name of prosecutor.	Date. 1897.	Name of offender.	Address.	Offence charged.
Middlesex.	John Gill.	Jan. 29.	John Farmer.	Exeter	Killing hare.
Essex.	F. C. Quallins.	April	O. Wheeler.	Leamington	Shooting ducks out of season.
do	do	October	C. A. Ferguson.	Ecorse, Mich.	Shooting without license.
do	do	do	R. F. Ferguson.	do	do
do	do	do	J. M. Reeves.	do	do
do	do	Nov.	Lifefield Hartford.	Shrewsbury	Trapping muskr. ts out of season.
do	do	do	John Burk.	Harwich Tp.	do
do	do	Dec.	Thos. T. Hollinger.	Detroit, Mich.	Shooting without license.
do	do	do	Harry D. Wright.	do	do
Lambton.	Jos. Kennedy	do 6.	Chas Lyons	Robert's Ldg, Mich	Unlawful shooting.
do	do	do	Fred Lyons.	do	do
Grey.	Ludwig Siegmann.	July 3.	Noah Esch.	Ayton	Net fishing.
do	do	do	Conrad Seim.	Hampton	do
do	do	do	John Yost.	Ayton	do
Simcoe.	Thomas Stanton.				
do	John Rines.	Jan. 12.	W. C. Goffett.	Orillia.	Illegal possession of moose hides.
do	do	do 16.	Nosgoe (Indian).	North Bay.	Illegal possession of moose meat.
do	do	Mar. 26.		Barrie Bay.	
do	do	July 23.		Moon River	
do	do	do 29.		Crane Lake	
do	do	Aug. 18.		Savern River.	
do	do	do 23.	John Stewart.	Buffalo	Illegal possession of venison.
do	do	Oct. 26.			
do	do	Dec. 4.		Lake Simcoe.	
Muskoka.	R. D. Brown	Aug. 28.	John Patterson.	Utterson	Shooting deer in close season.
do	do	do	Wm. Fatterson.	do	do
do	do	do	Richard Patterson.	do	do
do	do	do	Richard Bayley.	do	do
do	do	do	Thos. Bayley.	do	do
do	do	do	Mark Bayley.	do	do
do	do	do	Thos. Pattereon	do	do
do	do	do	Amos Barragor.	do	do
Leeds	A. J. Flood.	April 28.	A. Halladay.	Delta	Illegal fishing.
do	do	do	Geo. Bulles.	do	do
do	do	do	David Halladay.	do	do
do	do	do	P. A. Jackson.	do	do
do	do	do	W. J. Bench.	do	do
do	do	do	John Sawyer.	do	do
Halton.	Charles S. Racey.	Nov. 16.	Ernest Young.	Milton.	Obstructing deputy warden in the discharge of his duty.
do	do	do	Leonard White.		do
do	do	do	Robert Armstrong.		do
do	do	do	John Miles.		do
do	do	do	Norman White.		do
do	do	do	Wm. Stevenson.		do
do	do	do	John McJennett.		do
do	do	do	Arnold Jones.		do
do	do	do	Wm. Smith.		do
do	do	do	Robert Muirhead.		do
Ontario.	Joseph W. Remy.	Jan. 1.			
do	do	Oct. 6.			
do	do	do 9.			
do	do	do 10.			
do	do	do 18.			

REPORT OF CASES FOR

District or County.	Name of prosecutor.	Date 1897.	Name of offender.	Address.	Offence charged.
Ontario ..	Joseph W. Remy ..	Jan. 22 ..	.....	.....	.....
Peterboro	J. W. Wedlock ..	.....	.....	.....	.....
Nipissing ..	Edward Smith ..	August ..	Mr. Charlton ..	Hopahango Forks.	Shooting young deer
do ..	do ..	do ..	W. Guy ..	Ottawa ..	Carrying firearms on Sunday ..
Renfrew ..	Walter Yuill ..	Nov. 26 ..	John Box ..	Calabogie ..	Killing deer in close season ..
do ..	do ..	do ..	Box party ..	do ..	Killing deer in water
do ..	do ..	do ..	Alez. Menzies ..	Arnprior ..	do ..
do ..	do ..	do ..	Alden Bradford ..	Calabogie ..	Hunting in close season ..
do ..	do ..	do ..	Lanark party ..	Lanark ..	Killing deer in water
Glengarry ..	Hugh J. Sutherland.	October 3	Unknown ..	.....	Sunday shooting—without license ..
Bruce ..	W. H. Lawson ..	Nov. 9	Geo. Harding ..	Red Bay ..	Shooting deer in water and without license ..
do ..	do ..	do 9	Robt. Reid ..	do ..	do ..
Parry Sound	A. J. Greer ..	January 1	.....	.....	.....
do ..	do ..	October 24	Geo. Hull ..	Parry Sound ..	Sunday shooting ..
do ..	do ..	do 24	Jas. Horn ..	do ..	do ..
do ..	do ..	do 24	Jas. Thomas ..	do ..	do ..
do ..	do ..	Nov. 10	Wm. Clearfoot and Geo. Stocker ..	Collingwood ..	Moose killing ..
do ..	do ..	Feb. 15	Charles Labrash ..	Parry Sound ..	Putting out poison ..
do ..	do ..	May 30	George White ..	do ..	Killing deer out of season ..
do ..	R. S. Smith ..	March 24	L. Snider ..	Georgian Bay ..	Illegal possession of moose head ..
do ..	do ..	do 29	C. Thomas ..	do ..	Illegal possession of moose meat ..
do ..	do ..	April 5	— Fitz-Ros ..	Hamburg, Germany ..	Illegal possession of beaver ..
do ..	do ..	do 17	— Jackman ..	Killarney ..	do ..
do ..	do ..	Feb. 2	Wm. Hood ..	Baysville ..	Illegal fishing and trapping ..
do ..	do ..	April ..	Chas. Farr ..	Haliburton ..	Illegal possession of beaver ..
Hastings ..	H. K. Smith ..	Jan. 20	Robert Ferguson ..	Coboconk ..	Killing deer ..
do ..	do ..	Feb. 11	David Nesbit ..	Minden ..	do ..
do ..	do ..	do 20	David Barr ..	Darling ..	Selling partridge ..
do ..	do ..	do 20	John Kelly ..	Almonte ..	do ..
do ..	do ..	April 6	Robert Leichman ..	Clayton ..	do ..
do ..	do ..	do 7	Wm. Banning ..	do ..	do ..
do ..	do ..	do 8	Noble Raycraft ..	Darling ..	Killing otter ..
do ..	do ..	do 9	Wm. Rintoul ..	do ..	Selling partridge ..
do ..	do ..	do 12	John O'Donnell ..	Ottawa ..	do ..
do ..	do ..	do 15	W. E. Croft ..	Middleville ..	do ..
do ..	do ..	do 15	do ..	do ..	Otter-skin in possession ..
do ..	do ..	do 15	do ..	do ..	Venison in possession
do ..	do ..	do 26	John Barry ..	Asphodel ..	Trapping out of season ..
do ..	do ..	May 19	R. A. Hunt ..	Arnprior ..	Water shooting of deer ..
do ..	do ..	do 19	A. Menzies ..	do ..	do ..
do ..	do ..	do 19	Dr. Gemmell ..	Pakenham ..	do ..
do ..	do ..	Sept. 24	H. L. Brewster ..	Rochester ..	Shooting without license ..
do ..	do ..	do 29	Thos. Cleveland ..	Cooper ..	Killing deer ..
do ..	do ..	do 29	Aquilla Hannah ..	do ..	do ..
do ..	do ..	Nov. 15	J. G. Latta ..	Poucher's Mills ..	Killing otter ..

YEAR 1897.—Continued.

Was offender arrested or summoned.	Where tried.	Name of magistrate.	Result of case.	Nets, traps or illegal appliances seized during the season of 1897.
Summomed	Barry Bay	Mr. Sullivan	Dismissed	Seized jack-light and spear. do and confiscated some traps.
do	do	do	Dismissed with caution	
do			Not tried yet	
do			do	
do			do	
do			do	
Arrested			Escaped by firing	into and sinking deputy's boat.
Warrant for do	arrest issued do	B. B. Miller do	Not tried yet do	
Summomed do do	Parry Sound do do	J. Farrer do do	Fined \$5 do \$5 do \$5	Seized and confiscated one gill net.
Search warrant. Summomed	Parry Sound	J. H. Willmott G. R. Steel	do \$25 do \$20	
do	do	J. Farrer	Dismissed	
do	North Bay	Wm. Doran	Fined \$5 and costs.	Moose head confiscated and in possession of S. Huntingdon.
do	do	do	do	
Arrested			Would not claim furs.	7 beaver skins confiscated and sent to Dep't.
Summomed do	Killarney Baysville	J. H. Willmott do	Fined \$5 and costs. Case not proven	
			Case not called yet.	
Summomed do	Coboconk Minden	H. K. Smith Wm. Fielding	Fined \$40 do \$20	
Appeared voluntarily	Almonte	H. K. Smith	do \$10	
do	do	do	do \$50	
do	do	do	do \$10	
do	do	do	do \$15	
do	do	do	do \$10	
do	do	do	do \$20	
do	do	do	do \$5	
do	Middleville	do	do \$50	
do	do	do	do \$2	Confiscated furs.
Summomed do do	Pakenham do do	J. A. Munro do do	Dismissed do do	
Arrested	Deposited a security for appearance		\$40	
Summomed do do	Bannockburn do do	H. K. Smith do do	Fined \$20 do \$20	Confiscated skin, not disposed of.

REPORT OF CASES FOR

District or County.	Name of prosecutor.	Date. 1897.	Name of offender.	Address.	Offence charged.
Hastings ..	H. K. Smith	Dec. 20	David Thomson	Elzevir	Killing and trans- porting deer.....
do ..	do	do 20	Win Whittle.....	do	do
York	E. Tinsley	October 23	Ontario Fish Co	Toronto	Selling partridge....
do	do	do 23	M. Williams.....	do	do
do	do	Nov. 20	.....	do .....	.....
Muskoka ..	Elias H. Traves	Dec. 29	John McMillan.....	Bracebridge	Having muskrat skins.....
do ..	do	do 30	John Marting	Lancelot	Trapping muskrats in close season....
Parry Sound ..	Robert Mitchell	August 11	Wm. King	Jarlsberg	Putting sawdust and other rubbish in Bear Lake.....
do ..	do	do 11	John Nelson	do	do
do ..	do	do 2	.....	.....	.....
do ..	do	do 6	.....	.....	.....
do ..	Thomas McKnight	May 13	Wm. Graspny	Dornoch	Hunting during close season
Manitoulin	S. R. McKewen	Sept. 3	.....	.....	.....
do ..	do	October 27	James Hutchison	Sandfield	Fishing with gill nets and selling fish....

List of cases for 1898 will

YEAR 1897.—*Concluded.*

Was offender arrested or summoned.	Where tried.	Name of Magistrate.	Result of case.	Nets, traps or illegal appliances seized during the season of 1897.
Arrested ... do	Fined on view } do		\$120	
Summoned ... do	Toronto do	G. T. Denison ... do	Fined \$5 and costs. do \$5 do	
			Seized two parcels venison	Sent to Hospital for Sick Children and to Children's Aid Shelter. Seized 4 muskrat skins.
Arrested ... do	Bracebridge ... do	James Bayer ... do	Fined \$5 and costs Sent to gaol for	one week.
Summoned ... Acknowledged	Burk's Falls ... ed fault and paid	Hugh Hunter ... fine of \$10	Fined \$1 and costs	Destroyed 1 net { These were in do do { Maganetawan River.
Summoned ...	Chatsworth ...	John McDonald ..	Committed to gaol	30 days. Seized 1 trap net in Windfall Lake. Value about \$100. Burned it.
Arrested ...	Tehkummah ...	S. R. McKewen ..	Dropped for want	of evidence to convict.

appear in Report for 1899.

THIRTEENTH ANNUAL REPORT

OF THE

COMMISSIONERS

FOR THE

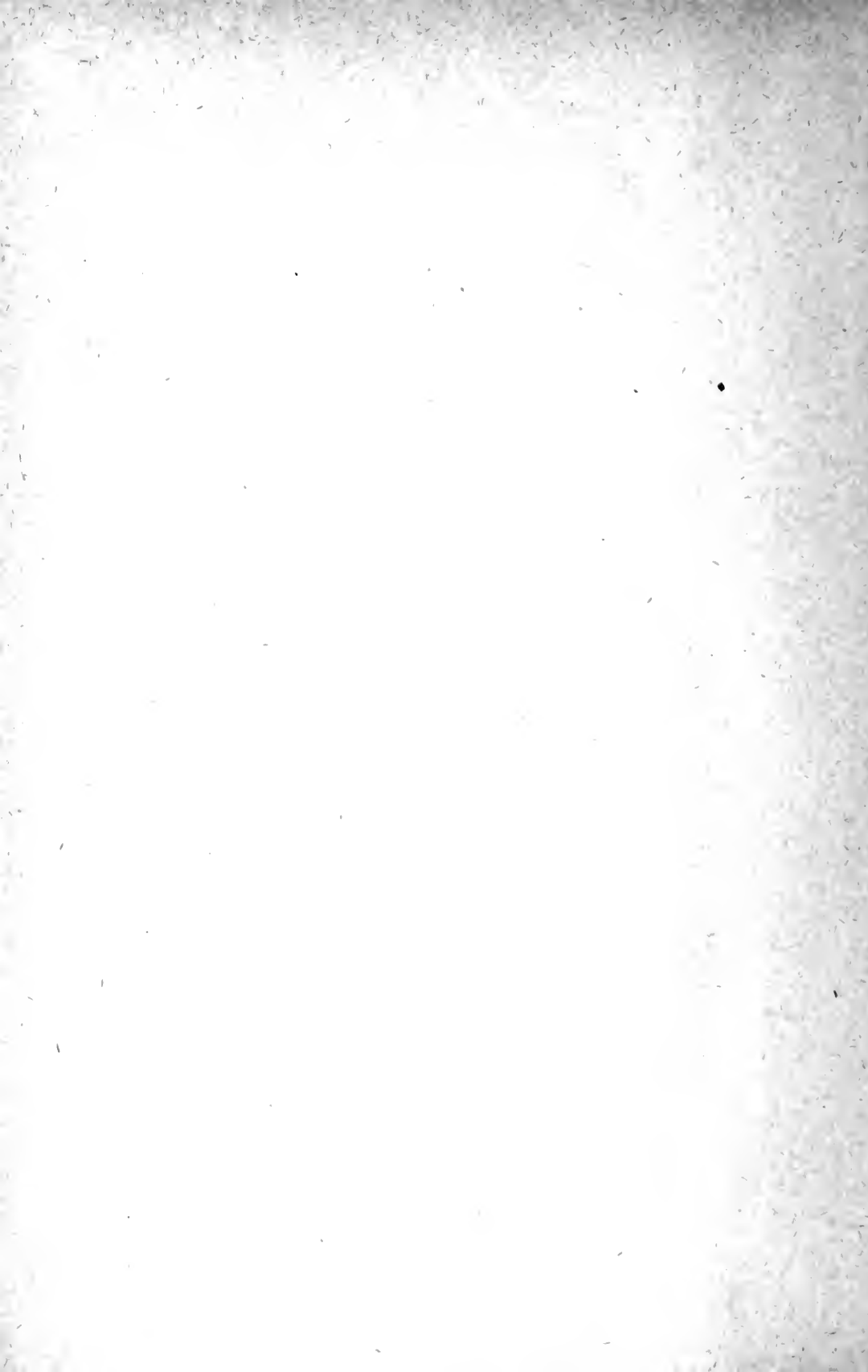
QUEEN VICTORIA NIAGARA FALLS PARK.

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1899.



THIRTEENTH ANNUAL REPORT

OF THE

COMMISSIONERS

FOR THE

QUEEN VICTORIA NIAGARA FALLS PARK.

To the Honourable SIR OLIVER MOWAT, K.O.M.G.
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOR :

The Commissioners for the Queen Victoria Niagara Falls Park beg to submit their thirteenth annual report, accompanied with the usual statement of the receipts and expenditures, being for the year ending 31st December, 1898.

In their last annual report the Commissioners made reference to the agreement which had been entered into with the Niagara Falls Park and River Railway Company and the Canadian Niagara Power Company, whereby these companies were authorized, pending the construction of the electrical power works of the latter company, to utilize, temporarily, the surplus hydraulic power then available in the power house of the railway company, for generating sufficient electrical energy to supply the urgent demand for manufacturing purposes in the neighborhood of Niagara Falls. In furtherance of this agreement the Canadian Niagara Power Company has installed an electrical plant in the railway power house, which, it is stated, will furnish about sixteen hundred electrical horse power in excess of what is needed for operating the Electric Railway ; of which amount, about six hundred horse power has already been put into practical use.

The original agreement made in 1892 with the Canadian Niagara Power Company conferred certain rights upon that Company, and also contained stipulations in respect to the time when the works authorized by the agreement were to be in actual operation. The failure of the power company to have the quantity of power specified in the agreement ready at the time stipulated and also their failure to carry on the extensive construction works necessary for the development of the power during the year prior to November 1st, 1898, in the opinion of the Park Commissioners voided the franchise of the Company. It was contended however, by the Company that the agreement gave them until November, 1899, for the completion of their works. In order to settle this question a "Stated Case" was submitted to the High Court of Justice for Ontario, in

the name of the Honourable, The Attorney General. The Case was argued at Osgoode Hall, before Chief Justice, Sir. W. R. Meredith and Justices Rose and McMahon, the questions submitted being as follows :—

(1) "Is the agreement determined and void by reason of the failure of the Company to complete, the Company not having been hindered by unavoidable accident?"

(2) "May the Lieutenant-Governor-in-Council or the Park Commissioners by reason of such failure declare the agreement, liberties, licenses, powers and authorities to be forfeited?"

(3) "If the whole agreement is not at an end, or if the same cannot be declared wholly at an end, are the Government and the Commissioners, under the circumstances, relieved from the agreement not to grant or confer upon any other Company or person the right to take or use the waters of the river?"

The decision of the Court on each of these questions was in the negative, thus upholding the contention of the Company, and allowing them until November, 1899, to carry out the works specified in the agreement.

In the month of October last the Canadian Niagara Power Company submitted, for the approval of the Commissioners, a revised set of plans accompanied with specifications, and detailed drawings of the works they propose to carry out in the Park under the agreement of April, 1892.

Owing, however, to the non-performance by the Company of any of the extensive works outlined in their general plans submitted in 1894, and to which the approval of the Commissioners was given on the 30th April, 1895, and of the several supplementary detail plans which the Commissioners had approved of from time to time, as desired by the Company subsequently to that date, and more particularly in view of the "Stated Case" which was about to be submitted to the Court of Appeal in order to determine whether the agreement of April, 1892, would remain in force after 1st November, 1898, the Commissioners decided not to take these revised plans into consideration until the judgment of the Court had been given.

Since the decision of the Court which was given on the 20th December last, sustaining the contention of the Company that they have until November 1st, 1899, to complete their works, the Commissioners have been awaiting the convenience of the Company to proceed with the consideration of their plans as finally revised.

In this connection the Commissioners desire to reiterate their disapproval of every artificial defacement of the natural scenery of the Park, whether in the development of works of a commercial character or in strained efforts to improve the scenic effects of the natural conditions surrounding the Falls. The granting of a charter permitting the electric railway to run through the park, and a franchise for generating electrical power for commercial and other purposes, have been regarded by some as inconsistent with this decision of the Commissioners. It should, however, be borne in mind that neither the Dominion nor the Provincial Government contributes any of the funds required to meet the expenditures for park improvements and maintenance, all of which have to be provided by the Commissioners from revenues derived from sources within the Park.

Under such onerous conditions the settled policy of the Commissioners has been to grant such franchises only, within the Park limits, as would contribute directly to the comfort and convenience of visitors; or which would produce a maximum of revenue with only a minimum of defacement of the natural scenery. The railway franchise has been amply justified by the facilities it has afforded visitors of visiting the upper reaches of the Park proper and enjoying, at their leisure and at trifling cost, the charming scenery of the upper rapids and the Dufferin Islands, the grand and picturesque scenery of the river gorge between the Falls and the historic Queenston Heights which constitute the present northerly terminus of the Park system, and in a very marked manner, by the greatly increased number of visitors which the Railway has brought to the Canadian Park since its construction. Many who had at first disapproved of the railway entering the Park, now frankly admit that it confers advantages upon the public which far outweigh any objections that might be made against it.

In the case of the power franchise, while the Commissioners were actuated primarily by the necessity for obtaining a revenue for park purposes, the development of electrical power on the American side, on such a large and extensive scale, produced such growth and prosperity on that side of the river, that the residents on the Canadian side naturally became clamorous for power development on this side, where admittedly the conditions are more favorable for the development of electrical power. The Commissioners, however, fully recognize the responsibility devolving on them of exercising such a careful and judicious supervision over the contemplated works as to ensure their being carried out with the least possible discomfort to visitors and injury to the natural beauty of the surroundings.

Early in the season strong recommendations were made in behalf of the fruit growers of the Niagara District, that additional facilities for shipping fruit were essential to the development and success of their business. Applications for wharfage accommodation at several points on the shore of the Niagara River were submitted and with the approval of the Government two agreements were entered into, one with Messrs. Marchmont and Company and one with Captain James Sheppard, for landing privileges; the first midway between Niagara and Queenston and the latter near the Village of Queenston. The terms of these agreements are inserted in the appendix to this report.

The title of the Commissioners to all the lands below the high bank of the river, in front of the Town of Niagara Falls, having been upheld by the Courts, application was made by the representatives of the Maid of the Mist Steamboat Company for a lease of certain privileges at the Ferry Landing, including wharf and landing rights, marine railway and the storage of boats etc., etc. After due consideration, and having regard to the numerous visitors which the steamers of this Company in their capacity of an international ferry would bring to the Park, an agreement was arrived at, under which the Company was granted the rights applied for, at a rental of three hundred dollars a year. The lease covers a term of three years, and will also be found in the appendix.

The first three days of the month of July were given by the Commissioners to a thorough inspection of the Park system, including the river banks from Lake Ontario to Lake Erie, and of the works which were being carried on at the various points in the Park limits under the directions of the Board. The Commissioners availed themselves of this extended inspection to visit the State Reservation on the New York side of the river, where several important works of improvement are being carried out, and also to drive over a large portion of the Buffalo Park system.

As a result of this general inspection of the Park system under their management and of comparison with the other park systems, the Commissioners resolved to recommend the following works to the favorable consideration of the Government :

1. That portion of the chain reserve lying in front of the Clifton House is in part enroached upon by the buildings and out-buildings of the hotel; and apart from such enroachment the roadway is much too narrow for the large and increasing traffic which passes between the upper arch bridge and the park. As the destruction of the Clifton House by fire affords an opportunity of widening and improving the principal approach to the park, it is recommended that the area indicated on a certain plan be acquired by arbitration or otherwise.

2. The road between the Restaurant and Cedar Island is so continually saturated by the spray from the Horse Shoe Falls that it is impossible to keep the roads and paths in good order; and as they are the most frequented in the Park, owing to their proximity to the Horse Shoe Falls, it is considered that steps should be taken as soon as possible to make this locality accessible at all times to visitors. The construction of a permanent brick or other waterproof road with suitable sidewalks is, therefore, recommended.

3. Attention has been drawn in several of the annual reports of the Commissioners to the exceptionally rugged nature of the talus under the high bank of the river, and more particularly to the extensive enlargement which juts out into the stream half a mile below the Whirlpool, and which is known as Niagara Glen—a region remarkable for its picturesque location, its geological formation and its great botanical wealth. It is

most desirable that this unique portion of the Park system should be at once made as accessible as possible to visitors, and the Commissioners recommend that several permanent pathways be constructed with this object in view.

4. Early in the year the Dominion Government granted a conveyance to the Commissioners of all the ordnance lands at Queenston Heights, which had not been previously disposed of. This included the lands forming the escarpment lying to the West of the Brock's monument grounds and the major portion of the lands lying below the Heights and in front of the Village of Queenston. The total area controlled by the Board at Queenston Heights is now over eighty acres, and embraces the whole of the beautifully wooded heights from the canon of the Niagara westwards for a distance of a mile and a quarter. Instructions have been given to the Superintendent of the Park to begin the clearing up and improving of this newly acquired territory in the Spring.

5. In addition to these specific works there are a number of important works of renewal urgently required in the Park and which have been put off from year to year for want of the means necessary for their execution; for instance, the foot suspension bridge leading from "Riverside Ramble" to the Dufferin Islands has been several times reported by the superintendent to be in an unsafe condition, and it is now imperative that it be entirely renewed, or a more rigid form of structure substituted for it. The long line of cribwork carrying the "Lovers walk" along the waters edge of the inside channel of the Dufferin Islands, has also run its course and requires to be entirely renewed. There are also several minor works which should be taken in hand without further delay.

The Commissioners desire to emphasize the importance of these works and also the impossibility of their being proceeded with out of the ordinary revenues of the Park. This will be apparent when it is stated that out of a possible annual revenue of about \$45,000 only some \$21,000 are available for the maintenance and improvement of the present system, including the Niagara Glen and Queenston Heights extensions, the balance being required to meet the coupon interest on the park debentures already issued to the amount of \$600,000. This indebtedness, however, bears but a small proportion to the great and constantly increasing value of the property as a provincial asset. The Commissioners have out of Bond issue and the revenue derived from the various franchises paid for all the properties taken into the Park system, and have also improved and maintained the property without making any call on the Provincial Treasury. If the works connected with the power franchise are proceeded with so that the revenue from this source may be permanently assured the Commissioners think that it will not be necessary to ask for provincial aid. In order, however, to obtain funds for the permanent improvements suggested, it is recommended that authority be granted for a new issue of debentures to the amount of \$25,000 bearing interest at three and one-half per cent per annum, payable half yearly, and maturing the same date as previous issues. This will provide for the following works:—

(1) For widening the River Road at the Clifton House.....	\$5,000
(2) For construction of a permanent roadway and pathways from the Restaurant to Cedar Island.....	10,000
(3) For the construction of permanent pathways in Niagara Glen.....	2,000
(4) For permanent improvements and additional pathways at Queenstown Heights Park.....	3,000
(5) For sundry permanent works in Niagara Falls Park....	5,000
	\$25,000

The Commissioners would also recommend to the Government the desirability of acquiring a chain in width across those lots fronting on the river between Chippewa and Fort Erie where the patents have conveyed to the water's edge, in order to make continuous the chain reserve along the bank of the river, and also that provision be made for protecting the shore of the river from further erosion, where this can be done economi-

cally. The Commissioners recommend that the highway be widened where it has been unduly encroached upon by the waters of the river.

In their report for the year 1896 the Commissioners made reference to a number of petitions from municipal and other public representative bodies in the County, asking that the grounds around the ruins of old Fort Erie should be taken over from the Dominion Government, and improved and maintained, under the jurisdiction of the Commissioners, as a portion of the Niagara Falls Park system, and a report from the Superintendent of the Park was also submitted at the same time. On the occasion of the visit of the Commissioners in July the subject was again brought to their attention; and the great desirability of doing something to preserve this famous old battle ground from further desecration and of improving and maintaining it as a fitting southerly terminus to the general system was considered.

The Park Superintendent was instructed to prepare plans showing how the lands in question should be dealt with, and also to submit a supplementary report in explanation thereof for the consideration of the Board. This plan and report will be found in the appendix hereto, and the Commissioners respectfully reiterate the opinion expressed in their Eleventh Annual Report, "That it is clearly in the best interests of the park system that effect should be given to the recommendation of the municipal and other public bodies referred to, but that owing to the inadequacy of the funds at the disposal of the Commissioners to meet current engagements, the works proposed in the improvement of this additional territory could not be undertaken without substantial assistance from the Dominion or the Provincial Governments."

The condition of the roadway on the chain reserve along the upper reach of the river, or from Chippewa to Fort Erie, was, on the occasion of the general inspection in July, found to be so contracted and unsafe at some points from the erosion caused by the strong currents in the river, that the Superintendent of the Park was instructed to prepare a special report dealing with the subject, and submitting plans for its improvement. This report will be found in the appendix, and the Commissioners recommend that they be authorized to adopt remedial measures, on the lines suggested by the Superintendent, at the earliest possible moment.

Application was made during the year to the Commissions by the Queenston Heights Bridge Company for a site on which to construct the Canadian end of their projected International Suspension Bridge, by means of which it is proposed to make a trolley connection between the Niagara Falls Park and River Railway and George Railway on the American side of the river, and to afford facilities for vehicular travel as well. Seeing that the proposed bridge would facilitate the interchange of travel on both sides of the river and thus materially increase the number of visitors to the Queenston Heights Park, the Commissioners recommended that the Government grant the application of the Company.

The completion of a new steel arch bridge in place of the Clifton International Suspension structure, near the Clifton House, gave an opportunity for securing a greatly desired improvement to the roadway and to the landscape at this point. The facilities afforded by the new bridge are of the most modern and perfect character and the appointments are greatly in advance of the former bridge.

During the year the Commissioners have had under consideration the question of the development of a portion of the water power of the lower rapids of the Niagara for commercial purposes, and the services of Mr. John Kennedy, M. I. C. E., have been secured as a specialist to advise the Board on the subject. Mr. Kennedy has been engaged during the year in making a study of the peculiar conditions obtaining at several points in the Gorge, where it had been suggested that power plants might be placed, and he has submitted an interim report dealing with the question in some of its various aspects. The Commissioners hope the investigations may have so far matured that they will be placed in possession of all the salient features of the case in good season to deal intelligently and confidently with the subject in the early spring, and regret that they have not been in a position to do so at a much earlier date.

The following summary will show the receipts and expenditures for the year :—

RECEIPTS.

Rental from the Canadian Niagara Power Company, one year to first November, 1898.....	\$25,000 00
Rental from the Niagara Falls Park and River Railway Company, one year to 1st December, 1898	10,000 00
Rental from Messrs. Zybach & Co. for photo privileges. restuarant, etc	8,200 00
Rental from Maid of Mist Steamboat Company for season of 1898.....	300 00
Receipts from tolls at Dufferin Islands and Brock's Monument.....	1,453 55
Receipts from sales of old material, etc	84 97
Imperial Bank. Interest on balances.....	72 78
Imperial Bank. Overdraft Dec. 31st, 1898	729 71
	<u>\$45,841 01</u>

EXPENDITURES.

Paid Imperial Bank overdraft on January 1st, 1898.....	\$428 51
Capital Account :	
Paid for permanent improvements including cost of material	\$3,320 60
Wages of mechanics and laborers.....	2,654 90
Land purchases and surveys.....	162 15
Miscellaneous, including legal expenses.....	500 81
	<u>\$6,638 46</u>
Maintenance Account :	
Paid salaries and wages, including wages of laborers, teams, etc	12,428 46
Cost of materials	1,612 95
Office expenses, etc.....	162 33
Commissioners expenses, etc.....	193 40
Miscellaneous.....	118 61
Interest on Bank overdraft.....	136 79
	<u>\$14,652 54</u>
Coupon interest on debentures and Bank charges thereon.	24,121 50
	<u>\$45,841 01</u>

J. W. LANGMUIR,
Chairman.
GEORGE H. WILKES,
B. E. CHARLTON,
JAS. BAMPFIELD.

APPENDIX A.

ANNUAL REPORT OF THE PARK SUPERINTENDENT.

To the Commissioners of the Queen Victoria Niagara Falls Park :

GENTLEMEN,—I beg to submit my report of the works which have been undertaken and carried out in connection with the Niagara Falls Park system during the year ended December 31st, 1898.

GENERAL MAINTENANCE.

Owing to the unusually early opening up of spring, the general works required for the proper maintenance of the park system at Niagara Falls and Queenston Heights involved considerably more labor and attention this season than has been the case for some years past.

The work of reclaiming and improving unfinished portions of the Park system, which is being steadily carried on year by year, necessitates a correspondingly increasing amount of labor, in order that these newly reclaimed and developed spaces may be maintained in the same good order and condition as the older finished portions of the Park ; so that year by year the outlay required for maintenance must be correspondingly greater in order to provide for the increased area under development.

As it was found impracticable to make a larger appropriation for these necessary works this year, the best possible attention was given to keeping the walks, lawns and shrubberies in nice order throughout the season, and this has been accomplished in a manner to meet with the cordial approval of visitors generally.

DRIVEWAYS.

The work of keeping up the driveways was well attended to during the early part of the season, but owing to want of funds the claims of this important work had to be neglected for the balance of the season, and only the most needy portions received repairs in the Autumn.

A general renewal of the main road from Mowat Gate to Cedar Island and light repairs of the remainder are proposed early in the spring, when the travel is light and would not be so much interfered with as in mid summer.

For the front reach of the driveway, the present surface should be removed and a heavy topping of macadam thoroughly rolled to a hard and even surface by a steam roller. For the middle reach where the copious showers of spray from the Falls render the making or keeping of a proper road surface out of the question with the material at hand, permanent and waterproof drive and footways are urgently needed. This matter has been referred to from time to time in previous reports, but again I desire to emphasise the need of this work.

Doubtless the outlay required for this purpose would in the first instance be comparatively large ; but until this work is undertaken the comfort and convenience of all the visitors to the Park, who either drive or walk, and who without exception desire to contemplate the sublime spectacle afforded by a near view from Table Rock, must be contingent upon the vagaries of the wind and absence of spray, not only at the moment but for some time previously.

GRADING AND SURFACING.

As a considerable portion of the front section of the Park has but little soil overlying the rock formation, it has been found quite impracticable to maintain the sod in anything like a presentable condition in periods of drouth, and planting in such places was of course out of the question. This condition of things being most undesirable, especially near the chief entrance to the park, it was decided to apply a heavy coat of good soil over the shallow places, and this spring the area extending from the Superintendent's office to Inspiration Point was levelled up with good soil taken from the foot of the slope near the Murray Gate, rolled to an even surface and seeded down with good lawn grass. The balance of the ground east of the driveway and down to the Mowat Gate, it is proposed to dress early in the spring.

TREES AND SHRUBS.

Some very choice collections of shrubs, imported through a local nursery man, from reliable firms in France, were obtained and planted out in the spring. Some of these are complete collections of their various kinds as far as is known, and embrace lilacs of which we have now no fewer than 62 distinct varieties, weigeliæ, duetziæ, hibiscuses, forsythias, coloneasters, spireas, ceanthuses, syringas, berberises and Tartarian honeysuckles. In addition to these complete collections, which have been set out in prominent places throughout the Park, especial attention being given to placing the more tender varieties in the most sheltered localities, a large variety of the best native growing flowering shrubs suitable to our conditions of soil and climate, which could be had in the country, were planted out forming a substantial addition to our stock of shrubs, and completing all the planting which it is intended should be done in some portions of the Park.

The passing of an act by the Government of Canada prohibiting the importation of all nursery stock from the United States, on account of the danger apprehended from the San Jose Scale, deprived us of a substantial addition to our stock of ornamental trees vines, etc., which had been ordered. As the embargo prevented the delivery of these ornamentals a collection of evergreens and hardy native trees was obtained instead, and set out so as to form plantations where desired, and intended chiefly for future effects.

CONSERVATORY.

The foundation and walls of the small conservatory which was begun in 1897, were completed this year, and a substantial furnace room, pump house and potting room erected. In addition a fernery and propagating house was added; and benches, hot water heating etc. supplied, which make the whole establishment very compact and efficient, although necessarily of quite small proportions.

The stock of plants which we have been able to obtain, is certainly not extensive; but through the good judgment of the chief gardener it is already very choice, and in some lines most complete; and the display affords a high degree of enjoyment to very many of our visitors.

CRIB-WORK PROTECTION.

The balance of the cribbing required to complete the protection of the long reach of main shore opposite the Dufferin Islands, was put in during the summer, and all danger from the action of the river upon the base of the high bank at this point is overcome. The filling of the cribs was, however, not completed for several reasons, and will require to be done in the spring.

The long walk which has been constructed upon the finished reach of this protection work, and known as Riverside Ramble, has been much appreciated by visitors during the summer. The beautiful weeping willows, which are stated on good authority to have been originally brought from St. Helena and which at some points embower the walk, throwing their handsome foliage high overhead while the branches droop with lithe and graceful form down to the water flowing swiftly below, especially attract attention.

ADDITIONAL SHELTER ACCOMMODATION.

For several seasons past the special facilities afforded to picnic parties in the Park have attracted large excursions from the cities and towns within easy railway distance of the Falls, and it became necessary to provide increased shelter accommodation for these in the district set apart as picnic grounds, in the event of rain storms or spray. After consideration the erection of a light pavilion of iron pipe framework, with ornamental canvas covering which could be removed during winter, was determined on. This was put up on the north side of the Murray street entrance and at the base of the hill, hard by the ball grounds, and formed a most attractive feature to many of the young people who utilize the space for dancing and other enjoyments.

SKATING POND.

During the winter months the ice on the large pond at the gravel pit, which is supplied with water piped from the river, was kept cleaned off and in condition for skating; and whenever the weather was favorable large numbers of young people from the vicinity of the Park and from the other side of the river as well, enjoyed this healthful recreation in the open air, on some occasions several hundreds being on the ice at the same time. At certain times hockey is allowed, and several interesting scratch matches were played by the citizens during the season. Skating was also indulged in on two of the other ponds in the Park—namely near Cedar Island and on the small ponds near the Mowat Gate.

VICTORIA PARKWAY

Under the agreement made with the Commissioners in 1895, the Town of Niagara Falls re-surfaced nearly one and one-quarter miles of the Victoria Parkway, putting on a very heavy coating of macadam and thoroughly rolling and blinding the surface to a good hard finish. This work has put this important avenue to the Park in excellent condition, and its maintainance should be made much easier for a long time to come.

The iron fence along the edge of the cliff was thoroughly over hauled and repaired during the season, and some new supports put in.

WHIRLPOOL POINT.

Some additional filling in has been done at the Whirlpool Point, the material being borrowed from the bank near by. As this filling requires air and frost to mellow and sweeten it before it is fit for seeding and planting, nothing was attempted in this way this season, but the surface was plowed up and prepared for the spring when it is intended to set out a varied collection of trees and shrubs. A nicely gravelled pathway was made from the electric railway station to the point.

NIAGARA GLEN.

The pathways opening up the beauties of Niagara Glen for visitors were extended, and now reach along the whole front of the Glen from the Fisherman's Eddy to Gravelly Bay. This romantic portion of the Park system was visited by many during the summer, and its charming scenery much admired.

QUEENSTON HEIGHTS.

At Queenston Heights Park the walks leading down to the village were much improved. The stairways on either side of the electric railway crossing were entirely renewed, and made much more easy of ascent, and a new gravelled walk was constructed from the foot of the steps to the bluff overlooking King Street, where a Prospect platform

with suitable stairways was put in. A garden tile was also laid along the lower terrace of the heights to effectually drain off the springs which made this part of the grounds practically impassable in the winter or spring.

A great deal of cleaning up and thinning out has also been done along the face of the heights, and scope given to the development of young growth arbor vitas and for the introduction of deciduous trees, in order to secure a brightness to the landscape, which is not possible where the juniper tree monopolizes the ground.

The cutting away of the thick undergrowth in the grove, referred to in last report, has made this part of the grounds entirely accessible, and a grateful shelter is afforded to the visitor while enjoying the magnificent panorama obtainable from the heights.

The cleaning up of the grounds about the Cenotaph, marking the spot where General Brock fell, to which reference was made in last report, and the planting of suitable weeping and ornamental shade trees, have given very general satisfaction, more especially as the grounds were kept in an attractive condition during the season.

Late in the autumn work was begun upon the re-construction of the old Queenston and Lewiston Suspension Bridge which was first built in 1850, and destroyed a few years later. The opening up of this bridge with the roadway approaches, required for access to it by the traveling public, will necessitate the putting of the adjacent hillside, which has been long neglected, into better shape than at present. It is expected that the bridge will be open for traffic early in the season of 1899.

The whole respectfully submitted.

JAMES WILSON,
Superintendent.

NIAGARA FALLS, January 20th, 1899.

APPENDIX B.

LEASE OF WHARF PRIVILEGES TO MARCHMENT AND HASKINGS.

This Agreement made this eighteenth day of July, in the year of our Lord one thousand eight hundred and ninety-eight,

Between

The Commissioners for the Queen Victoria Niagara Falls Park ; Acting herein on their own behalf as well as on behalf and with the approval of the Government of the Province of Ontario, and hereinafter called the Commissioners of the First Part.

And

Samuel W. Marchment and George Haskings of the City of Toronto, Shippers, hereinafter called the Contractors of the Second Part.

The Contractors, in the covenants, provisoes and stipulations by them hereinafter provided Covenant jointly for themselves, their heirs, executors and administrators and each of them doth hereby severally for himself, his heirs, executors and administrators covenant, promise and agree to and with the Commissioners in respect of the several matters in and by these presents set forth.

Whereas the Niagara Township Farmers and Fruit Growers Association have petitioned that in order to provide for cheaper and better transportation of the fruit and produce of their district it is necessary to have further wharf accommodation along the Niagara River and did pray that permission to build a wharf in front of parts of Lot Number Sixteen and Lot Number Seventeen of the Township of Niagara, on the said river be granted to the Contractors above described, and Whereas the Commissioners are prepared to grant to the Contractors, in furtherance of the above objects, permission to build a wharf (and an approach or access thereto) and to hold and occupy as hereinafter provided.

And whereas the Contractors, have acquired from the owners of certain parts of said lot number sixteen in the said Township of Niagara, rights to construct a road allowance from the Niagara River Road down the hill to the Niagara River for the purpose of conveying merchandise to and from the wharf, by virtue of Two certain Instruments Numbers 3632 and 3633 registered in the Registry Office for the County of Lincoln, in Book A., for the Township of Niagara, on the seventeenth day of June, one thousand eight hundred and ninety-eight.

Now therefore this agreement witnesseth that in consideration of the rents, covenants and conditions hereinafter contained and set forth, the Commissioners license and permit Samuel W. Marchment and George Haskings, hereinbefore and hereinafter described as the Contractors, their executors, administrators and assigns, to enter upon, possess and occupy so much of the lands hereinafter mentioned and described as necessary to use and occupy for the purpose of building a wharf and approach thereto, namely :—

(1) That part of the lands lying along the bank of the Niagara River, in the Township of Niagara, and County of Lincoln, in front of lot number sixteen and lot number seventeen of the said Township of Niagara, comprised in the new roadway constructed in April 1898, to connect the waters edge of the Niagara River, at a point opposite the division line between said lots sixteen and seventeen with the highway between Niagara and Queenston, at a point about 475 feet southerly from where the said division line intersects the said highway.

(2) That part of the bed of the Niagara River or the accretion to the Bank of the River formed in what may have been foreshore or bed of the Niagara River, opposite to lots sixteen and seventeen covered or to be covered by a wharf about to be built, from the foot of the new roadway described in Parcel (1) to navigable waters. The said wharf to have at its eastern extremity a cross section of about 130 feet in length by 22 feet in width and the approach thereto.

To have and to hold the same to the said Samuel W. Marchmont and George Haskings, their executors administrators and assigns for the period of ten years from the date hereof and thereafter during the pleasure of the Commissioners. That such tenure is upon the express condition that the works and wharf to be built upon the lands and premises hereby licensed to be used and occupied by the Contractors shall be for the purposes of a fruit business or other commercial business of like character or incidental to the needs of the ordinary fruit grower or farmer of the neighborhood.

And it is further understood and agreed that the adaptation or enlargement of the works or wharf aforesaid for the use or intended use of any larger commercial business of wharfinger or forwarder except as aforesaid or for the location of a Railway or Electric Railway or for any such purposes shall by the very act or acts of adaptation or enlargement, be a forfeiture of the Tenure under these presents.

And on the Commissioners assuming possession of the lands and premises hereby licensed to be used and occupied, or the appurtenances thereto, in consequence of such forfeiture by such act of adaptation or enlargement, neither the said Samuel W. Marchmont and George Haskings, their executors, administrators or assigns nor any person or persons claiming through or under them, shall be entitled to ask, demand or receive any compensation or damages in the premises, whatsoever, from the Commissioners, or from the Government of Ontario, or any Minister, Officer, Servant or Agent thereof. Such forfeiture shall not be considered as occurring until after one month's notice in writing of their action complained of shall have been served upon the Contractors by the Commissioners, and the failure of the Contractors to remedy the grievance within that time.

And these Presents are further subject to the reservation that during the period of use and occupation hereby licensed, either during the existence of the period of ten years limitation, or at any time hereafter while the Contractors shall be in the enjoyment of the occupation under the said license, the Commissioners may at any time build or authorise to be built an esplanade road or carriage way or Electric, Steam or other Railway or means of communication across the Roadway or approach to the wharf by the Contractors building or intending to build, without remuneration to the Contractors, such crossing not to interfere with the utility of the Roadway or approach to the wharf for the purposes of the Contractors business to be used in accordance with these presents.

Provided always and these presents are upon and subject to the several stipulations, provisions and conditions hereinafter expressed and contained, that is to say:—

That the Contractors shall pay or cause to be paid to the Commissioners, or to such person as may be authorised to receive the same, the yearly rental of One dollar of lawful money of Canada for the same for each and every year that the said lands shall be so occupied as aforesaid, the first of such payments to become due and be made on the First day of June in the year one thousand eight hundred and ninety-nine.

That the said Contractors shall not at any time or times during the continuance of this license assign or sublet the said lands and premises or any part thereof or their use and occupation without the consent of the Commissioners evidenced in writing and executed under their Corporate Seal, being first had and obtained nor do or suffer to be done or committed by others any manner of waste, spoil or destruction to or upon the said lands and premises nor carry on or allow to be carried on any noisome or offensive trade or business whatsoever.

Provided nevertheless that upon the expiration or other determination for any cause of the said period of ten years the Commissioners shall resume possession of the said lands or any part thereof so licensed to be used and occupied as aforesaid, the Contractors

shall have the right within the period of three months of the expiration or determination of the said period of ten years or from the time of the Commissioners having given notice to the Contractors their executors, administrators or assigns of such resumption of possession after such termination or expiration as aforesaid to remove from the said lands and premises if the navigation be then open or within six months if the navigation be not open, or to any period not less than the foregoing, as the Commissioners may determine, any property or wharf or works which they may have placed thereon or adjacent or appurtenant thereto; but the right hereby conferred to the Contractors to remove such property, wharf or works as aforesaid shall not in any way affect the possession of the Commissioners after the termination or expiration of the said period of ten years or other termination of the said license by the Commissioners or restrict their right to enter upon and use the said lands and premises for any purpose, but doing no unnecessary damage to the property, wharf or works, during the period hereby allowed to the Contractors to remove the same.

And it is hereby further covenanted by the Contractors as aforesaid with the Commissioners, that the Contractors will during the period of their occupation pay all taxes, rates and assessments whatsoever, whether Municipal, Parliamentary or otherwise now charged or hereafter to be charged upon the premises hereby licensed to be used and occupied by the Contractors, or upon the works or wharf to be thereon erected or adjacent thereto.

And it is further expressly provided that if during the enjoyment by the Contractors of the license or occupation hereby secured or permitted to them by these presents, that the Owners of Lot Sixteen shall put an end to the user by the Contractors of the Roadway, described in the hereinbefore recited Instruments as registered, the Commissioners shall not be required to provide any other Roadway for access by the Contractors to the said wharf or premises by the Commissioners licensed to the Contractors by these presents.

The Covenants and Agreements by any party hereto, in these presents contained are not to be construed as expressing or implying any Covenants for title or quiet possession.

In witness whereof the parties hereto have hereunto set their hands and seals.

Signed, sealed and delivered in the presence of

As to execution by Samuel W. Marchment, and Geo. Haskings,

V. T. WEST.

(Sgd.) SAMUEL W. MARCHMENT, (Seal.)
 (Sgd.) GEO. HASKINGS, (Seal.)
 J. W. LANGMUIR,
 (Seal.) Chairman.

APPENDIX C.

LEASE OF WHARF PRIVILEGES TO CAPTAIN JAS. SHEPPARD.

This agreement made this twenty-second day of July, in the year of Our Lord one thousand eight hundred and ninety-eight,

Between

The Commissioners for the Queen Victoria Niagara Falls Park, acting herein on their own behalf as well as on behalf and with the approval of the Government of the Province of Ontario, and hereinafter called "the Commissioners," of the First Part.

And

James Sheppard, of the Township of Niagara, fruit grower, hereinafter called the Contractor of the second part.

The Contractor in the Covenants, provisoes and stipulations by him hereinafter provided, covenants for himself, his heirs, executors and administrators to and with the Commissioners, in respect of the several matters in and by these presents set forth.

Whereas the Niagara Township Farmers and Fruit Growers find that in order to provide for cheaper and better transportation of the fruit and produce of their district it is necessary to have further wharf accommodation, and as the above mentioned contractor has applied for permission to repair the old wharf, known as the "Deep Hollow" wharf, in front of lot six in the Township of Niagara, and whereas the Commissioners are prepared to grant the Contractor in furtherance of the above mentioned object permission to repair the old wharf above mentioned and to hold and occupy the same as hereinafter provided.

Now therefore this agreement witnesseth that in consideration of the rents, covenants and conditions hereinafter contained and set forth, the Commissioners license and permit James Sheppard, hereinbefore and hereinafter described as the Contractor, his executors, administrators and assigns to enter upon, possess and occupy as much of the lands hereinafter mentioned and described as necessary to use and occupy for the purpose of building a wharf and approach thereto, namely:—

That part of the lands lying along the bank of the Niagara River, in the Township of Niagara, and County of Lincoln, in front of lot six of the said Township of Niagara, comprising the remains of the old wharf and approaches thereto, and commencing at the north side of the creek running down the deep hollow ravine and extending two hundred and fifty feet along the shores of the Niagara River, and extending outward into the said river to navigable water.

To have and to hold the same to the said James Sheppard, his executors, administrators and assigns for the period of ten years from the date thereof, and thereafter during the pleasure of the Commissioners, that such tenure be upon the express condition that the works and wharf to be built upon the lands and premises thereby licensed to be used and occupied by the Contractor shall be for the purpose of a fruit business or other commercial business of like character or incidental to the needs of the ordinary fruit grower and farmer of the neighborhood.

And it is further understood and agreed that the adaptation or enlargement of the works or wharf aforesaid for the use or intended use of any larger commercial business of wharfinger or forwarder except as aforesaid, or for the location of a railway or electric

railway, or for any such purpose shall by the very act or acts of adaptation or enlargement be a forfeiture of the terms under these presents.

And on the Commissioners assuming possession of the lands and premises hereby licensed to be used and occupied, or the appurtenances thereto, in consequence of such forfeiture by such act or acts of adaptation or enlargement, neither James Sheppard, his executors, administrators or assigns, nor any person or persons claiming through or under him shall be entitled to ask, demand or receive, any compensation or damages in the premises, whatsoever, from the Commissioners, or from the Government of Ontario, or any minister, officer, servant, or agent thereof. Such forfeiture shall not be considered as occurring until after one month's notice in writing of his or their action complained of shall have been served upon the Contractor by the Commissioners, and the failure of the Contractor to remedy the grievance within that time.

And these presents are further subject to the reservation that during the period of use and occupation hereby licensed, either during the existence of the period of ten years limitation, or at any other time hereafter while the Contractor shall be in the enjoyment of occupation under the said license, the Commissioners may at any time build or authorize to be built an esplanade road or carriage way, or electric, steam or other railway, or means of communication across the roadway or approach to the wharf by the Contractor building or intended to be built without remuneration to the Contractor, such crossing not to interfere with the utility of the roadway or approach to the wharf for the purposes of the Contractor's business to be used in accordance with these presents.

Provided always and these presents are upon and subject to the several stipulations, provisos, and conditions hereinafter expressed and contained, that is to say :

That the Contractor shall pay or cause to be paid to the Commissioners, or to such person as may be authorized to receive the same the yearly rental of one dollar of lawful money of Canada for the same for each and every year that the said lands shall be occupied as aforesaid, the first of such payments to become due and to be made on the first day of August in the year one thousand eight hundred and ninety-nine.

That the said Contractor shall not at any time or times during the continuance of this license assign or sublet the said lands and premises or any part thereof, or their use and occupation without the consent of the Commissioners evidenced in writing and executed under their corporate seal being first had and obtained nor do or suffer to be done or committed by others any manner of waste, spoil or destruction to or upon the said lands and premises, nor carry on or allow to be carried on any noisome or offensive trade or business, whatsoever, such business whether noisome or offensive shall be determined to be so by the Commissioners only.

Provided nevertheless that upon the expiration or other determination for any cause of the said period of ten years, or at any time after the expiration of the said period of ten years, the Commissioners shall resume possession of the said lands or any part thereof so licensed to be used and occupied as aforesaid, the Contractor shall have the right within the period of three months of the expiration or determination of the said period of ten years, or from the time of the said Commissioners having given notice to the Contractor, his executors, administrators or assigns of such resumption of possession after such determination or expiration as aforesaid, to remove from the said lands and premises if the navigation be then open, or within six months if the navigation be not open, or to any period not less than the foregoing as the Commissioners may determine, any property or wharf or works which they may have placed thereon or adjacent or appurtenant thereto ; but the right hereby conferred to the Contractor to remove such property, wharf or works as aforesaid shall not in any way affect the possession of the Commissioners after the termination or expiration of the said period of ten years, or other termination of the said license by the Commissioners ; or restrict their right to enter upon and use the said lands and premises for any purposes, but doing no unnecessary damage to the property, wharf or works during the period hereby allowed the Contractor to remove the same.

And it is hereby further covenanted by the Contractor as aforesaid with the Commissioners, that the Contractor will during the period of occupation pay all taxes, rates

and assessments whatsoever, whether municipal, parliamentary or otherwise now charged or hereafter to be charged upon the premises hereby licensed to be used and occupied by the Contractor, or upon the works and wharf to be thereon erected or adjacent thereto.

And it is hereby expressly provided that if during the enjoyment by the Contractor of the license or occupation hereby secured or permitted to him by these presents, the Contractor shall in any way be deprived of the uses or access now in existence from the Queenston and Niagara road, the Commissioners shall not be required to provide any other roadway for access by the Contractor to the said wharf or premises.

The covenants and agreements by any party hereto, in these presents contained, are not to be construed as expressing or implying any covenants for title or quiet possession.

In witness whereof the parties hereto have hereunto set their hands and seals.

Signed and sealed and delivered
in presence of
JAMES WILSON.

Sgd. JAMES SHEPPARD. (Seal)
Sgd. J. W. LANGMUIR, (Seal)
Chairman.

APPENDIX D.

LEASE OF WHARF PRIVILEGES, ETC., TO MAID OF THE MIST STEAM-BOAT COMPANY.

This indenture made the eighteenth day of July, in the year of Our Lord one thousand eight hundred and ninety-eight, in pursuance of the Act respecting short forms of Leases!

Between

The Commissioners of the Queen Victoria Niagara Falls Park, hereinafter called "The Commissioners," The Lessors of the First Part,

And

The Maid of the Mist Steamboat Company, a corporation duly incorporated under the Laws of the State of New York, the Certificate of Incorporation whereof is filed and recorded in the office of the Secretary of State at the City of Albany, on the 20th day of February, 1892, hereinafter called "The Company." The Lessees of the Second Part.

Witnesseth that in consideration of the yearly rents, covenants and conditions hereinafter reserved and contained on the part of the said Company, their successors and assigns, to be paid, observed and performed they the said Commissioners have demised and leased and by these presents do demise and lease unto the said Company, their successors and assigns all those parcels of land within the Queen Victoria Niagara Falls Park and in the Town of Niagara Falls, and Province of Ontario, whereon are built and erected and form part of the Freehold, being the wharves, marine railways and buildings, marked A, B, C, D, E, F, G and H, on the plan hereto annexed, and including the winter storage of vessels, together with the right of ingress and egress to and from the lands and property hereby demised.

Together with all the rights, members and appurtenances whatsoever to the said lands and premises belonging or appertaining; to have and to hold the said hereby demised premises, for and during the term of three years, to be computed from the first day of January, one thousand eight hundred and ninety-eight, and from thenceforth next ensuing and fully to be complete and ended.

Yielding and paying therefor yearly and every year during the term hereby granted, unto the said Commissioners their successors or assigns, the sum of Three hundred dollars of lawful money of Canada, on the first day of June in each and every year during the continuance of said term: The first payment to be made on the first day of June A.D. 1898, and the last payment on the thirty-first day of December nineteen hundred and one.

The said Company hereby covenant and agree with the said Commissioners that in consideration of the premises and of the leasing and letting by the said Commissioners to the said Company of the lands above named for the term hereby created (and it is upon that express understanding that these presents are entered into) that, notwithstanding anything contained in section thirty of chapter one hundred and seventy of the Revised Statutes of Ontario, 1897, or in any other section of said Act, that none of the goods or chattels of the said Company at any time during the continuance of the term hereby created on said demised premises, shall be exempt from levy by distress for rent in arrears by said Company as provided for by said section of the said Act above named, and upon any claim being made by the said Commissioners this covenant and agreement may be pleaded as an estoppel against said Company in any action brought to test the right to the levying upon any such goods as are named as exempted in said section. Said

company waiving as they hereby do, all and every benefit that could or might have accrued to them under and by virtue of the said section of the said Act, but for the above covenant.

And the said Company for themselves, their successors and assigns, hereby covenant with the said Commissioners their successors and assigns, to pay rent, and to pay taxes and to repair (reasonable wear and tear and damage by fire and lightning and tempest only excepted); And that the said Commissioners may enter and view state of repair. And that the said company will repair according to notice (except as aforesaid); and will not assign or sublet without leave; And will not carry on any business but that incidental to Ferry Landing and Excursion business, and not any restaurant, curiosity or photograph or any other business that shall be deemed by the Commissioners to be an annoyance or nuisance on said premises, or by which the insurance on said premises will be increased: And that they will leave the premises in good repair.

And also that if the term hereby granted shall be at any time seized in execution or in attachment, by any Creditor of the said Company, or if the said Company shall make any assignment for the benefit of Creditors, or becoming bankrupt or insolvent debtors, the then current year's rent shall immediately become due and payable and the said term shall immediately become forfeited and void.

Proviso for re-entry by the said Commissioners on non-payment of rent, or on non-performance of Covenants, or seizure or forfeiture of the said term for any of the causes aforesaid.

The said Commissioners Covenant with the said Company for quiet enjoyment.

The said Company hereby covenants to keep in a good state of repair continuously, the roadway leading down from the highway at the point of crossing at the Niagara Falls Park and River Railway tracks, to the landing, and maintain the same in good serviceable condition and order during the continuance of this lease, subject to the inspection and in accordance with the directions of the Commissioners.

The said Company hereby covenants to remove within ten days the coal sheds and chicken coops now on the premises demised and situated opposite to the dwelling house lettered (H) and erect a verandah on the West side of said dwelling house with lattice work.

The said Company hereby covenants to widen the roadway at this point opposite and near the spot marked by letter (H) where designated by the said Commissioners.

The said Company covenants to tightly and closely face up the old wharf marked (A) on the plan with close planking.

The said Company covenants to neatly lattice the base of the dining and store rooms lettered respectively (E and F) on said plan, and to plant vines to screen these and the buildings lettered (E, F, G, and H) on said plan with foliage.

The said Company also covenants to keep the premises demised in a neat and tidy condition during the continuance of the term demised.

In witness whereof the parties above named have affixed their respective Corporate Seals, on the day and year first above mentioned.

Witness,
P. P. PFOHL.

(Sgd.) HANS NIELSON,
President.
FRANK LE BLOND,
Secretary.
J. W. LANGMUIR,
Chairman.
Seal of Com'rs.

APPENDIX E

REPORT ON THE CHAIN RESERVE IN FRONT OF THE TOWNSHIPS OF WILLOUGHBY AND BERTIE

J. W. LANGMUIR, ESQ,
Chairman.

DEAR SIR:—In accordance with the instructions of the Board I have to make the following report upon the present status of the lands owned by the Commissioners along the West bank of the Niagara River, extending southwards from the Village of Chippawa to the Village of Fort Erie.

On the 23th July 1893, I submitted a general report on the chain reserve from Lake Erie to Lake Ontario, and covering all the frontage then vested in the Commissioners. That report of course included the part of the reserve now under consideration, and described the condition of the property as then existing and the whole was embodied in the annual report of the Commissioners for the year 1895. It may, however, not be amiss to go over the ground again, in order to emphasise the several features to which attention is especially desired and to deal with the subject more in detail.

The title to all the lands now under consideration were granted to the Commissioners by patent from the Crown, dated 26th October, 1891. They are described "as all the strips of land which lie along the bank of the Niagara River . . . extending from the Garrison Road in the Village of Fort Erie to and including lot number 22 in the second concession of Willoughby, lying between those portions of lots heretofore granted by Letters Patent from the Crown and the Niagara River."

Out of a total of sixty patents granted for the farm lots fronting on the River in the two townships, forty-nine contained a specific reserve of a strip one chain in width along the water's edge and eleven did not; in other words out of a total length of nearly sixteen miles which the patent to the Commissioners embraced, the frontage is conveyed for a distance of about $13\frac{3}{8}$ miles and the balance of $2\frac{5}{8}$ miles was not conveyed—nearly all this balance being in the Township of Willoughby.

The accompanying map shows in green color the lands which have been vested by patent in the Commissioners. Should it be desired to complete the ownership to the frontage, the acquiring of the strips of land tinted in pink on the map would be necessary.

A highway or travelled road extends along the shore the whole of the way from Chippawa to Fort Erie, and is the chief means of travel from one point to another; but, unfortunately, the erosive action of the waters of the river has cut deeply into the clay bank in many places, and it is even claimed that at several places the erosion has eaten away not only the whole of the chain in width originally reserved, but has actually encroached on the adjoining lands, necessitating the moving back of the fence from time to time, in order to provide room for the highway or travelled road. But this as it may be the present condition of the road is in some places exceedingly narrow and positively dangerous to traffic, and the erosive action of the river under the influence of storms or passing steamers is too obviously the cause to permit of any doubt as to its agency in the premises.

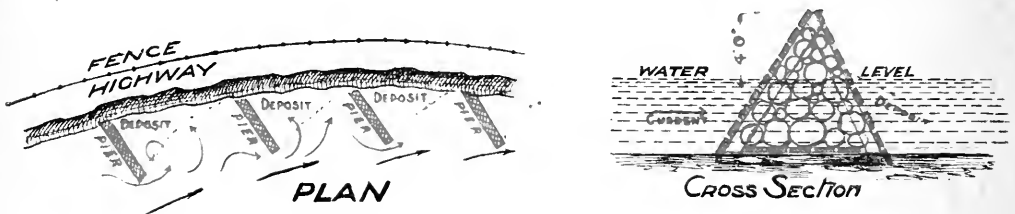
The adjoining proprietors, alarmed at the destruction continually threatening their property, have in numerous instances taken active measures to lessen the inroads of the water. Chief among the means adopted has been the planting of willow trees whose roots, if they attain to maturity, form a good barrier against wave action; while others have built rough stone rip-rap along the bank at the general level of the water. Others again have gone to very considerable expense and used both stone and willow protection, and in all cases with a certain degree of success. Owing, however, to the comparatively limited nature of the protective works anywhere attempted, and to the varying level of the water, which sometimes rises several feet and attacks the clay bank above the rip-rap,

none of these relief measures are wholly effective ; and the destructive work is still going on in a greater or lesser degree—a fact which is very apparent from the discoloration of the river after every storm.

There would seem to be no possible question as to the desirability of taking early measures to cope with the destruction which is going on, and presumably the chief difficulties in the way are of a financial nature.

Upon a careful examination of the problem, I am of the opinion that any scheme for saving the shore of the river from further damage, which would be at once effective and permanent, cannot be devised or put in practice without going to considerable expense ; and I have to recommend that a test be made of a tentative plan, which while the least expensive that I can suggest, would be likely to afford all the protection that is needed, and at the same time have a large degree of permanency.

What is proposed is a series of timber breakwaters or light piers, triangular in cross section, made wholly of planking well spiked together, and loaded down with stone. These breakwaters to be placed at intervals of say 35 to 40 yards, and to be inclined at such an angle with the shore as will best tend to break the action of the waves and divert the current, so as to cause a permanent deposit of the sand and gravel, which is constantly being carried along by the current, on the down stream side of each of those obstructions.




These breakwaters should stand at least four feet above the summer level of the water, and reach far enough out into the stream to secure against the scouring of the bottom to a depth of four or five feet of water. The construction of the system of protection proposed will be sufficiently elastic for the varying conditions to be met with in the contour of the bottom, while the material will be easily handled and the labor of the least expensive kind. All the timber and stone required can be brought to the work by water carriage. To afford protection to the most needy places, probably not less than 5,000 yards of shore line should have early attention ; and ultimately it will doubtless be found necessary to materially increase this length. For the first year, however, and until the efficacy of the system recommended is fully established, the construction of ten or a dozen of these breakwaters at several of the most needy points—thus affording protection to reaches of say 400 or 500 lineal yards of the shore—would be ample, and the outlay involved would probably not exceed \$1,500 for each reach protected.

In addition to the work of protecting the shore it will be necessary to acquire additional lands to widen the existing highway in order to make a suitable boulevard between the Park at Niagara Falls and the reserve lands around the old fortifications at Fort Erie and it certainly would be most desirable at the same time to secure a width sufficient for the purposes of an electric railway, which sooner or latter will be required to connect the Niagara Falls Park and River Railway with the Villages of Bridgeburg and Fort Erie, and especially with the City of Buffalo.

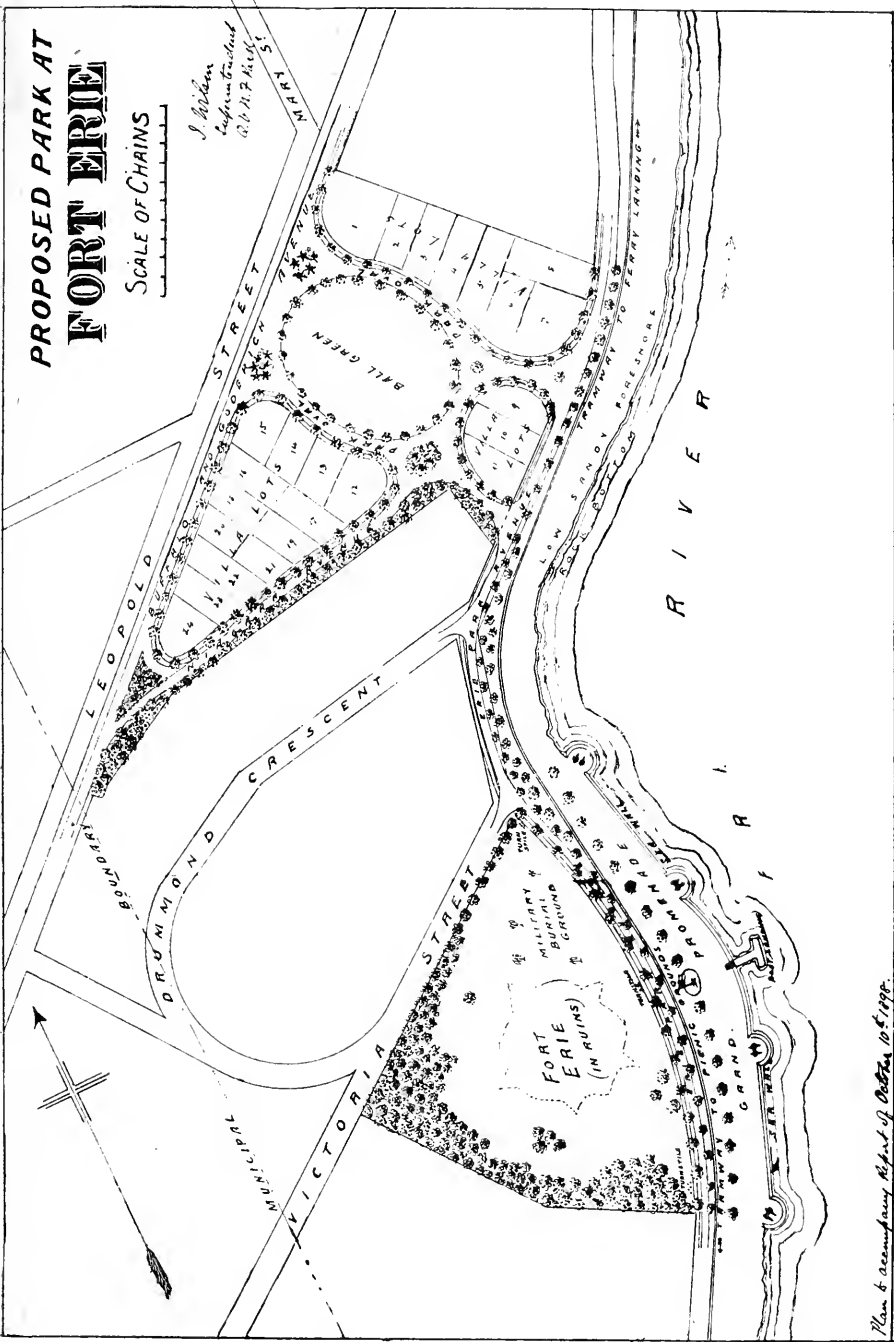
Under the agreement made with the Park and River Railway in 1894, provision has been made for a new roadway 60 feet in width to run along side and immediately west of the reserved lands from Chippawa Village as far as Slater's Dock, the present terminus of the electric road. The new roadway for about one-half of this distance has been opened up. The land for the balance has not yet been acquired ; but when completed this portion of the highway, about $1\frac{1}{2}$ miles, will be amply provided for—including all the width required for electric railway purposes.

PROPOSED PARK AT FORT ERIE

SCALE OF CHAINS



*J. Wilson
Superintendent
C.P. & P. Co.*



Plan & accompanying Report of October 10th 1898.

From Slater's Dock to Black Creek—say $5\frac{1}{2}$ miles—the average width of the present highway is 39 feet, but this is reduced in many places to not much over 20 feet, a space wholly inadequate for a carriage way, side path and ditch.

Between Black Creek and the Village limits of Bridgeburg, a distance of $6\frac{3}{4}$ miles, the present width of roadway averages 28 feet, but there are numerous places where there is not over 12 feet, and in some spots this is reduced to only 9 feet between the fence line and the top of the steep bank, which in some of the narrowest places is almost perpendicular. The greatest erosion seems to be taking place on this portion of the road, the clay banks in several places presenting a raw appearance as in a newly excavated cellar. At some points in this section the road widens out to 60 feet or more; and near the township line there is an accretion to the roadway for a distance of about $\frac{5}{8}$ of a mile and varying from 50 to 400 feet in width, comprising an area of nearly 20 acres.

In front of the Village of Bridgeburg (about one mile in length) the width of the road varies considerably, the minimum being about 26 feet. It will not be necessary to widen the road over the greater part of this distance, except by filling in on the river side in some places. There are numerous buildings and garden plots which it would be difficult to disturb, and on the river side also there are obstructions, such as boat houses, wharves, etc. which in some cases would require to be altered before a proper roadway could be built. Through the Village of Fort Erie which adjoins Bridgeburg on the south, there is sufficient width for all purposes, although there are several encroachments on the reserve. In this municipality there has been no encroachment by the river, but at the south end a considerable accretion has been made, and the land so formed has been from time to time disposed of by the Dominion and Ontario Governments.

In view of the possible demand for electric railway purposes, it would not be advisable to provide a lesser width of roadway than the standard chain of sixty-six feet on the level, and in cases where the bank of the river is deeply cut into this distance may have to be increased in order to admit of an easy slope being given to the shore. In order to afford this width, strips of land of varying width would require to be purchased from the proprietors of lands adjoining the river aggregating a total of some 50 acres.

The cost of purchasing these narrow strips of land would, doubtless, be in excess of the value of farm land adjoining; but as the making of a good parkway connecting the Park at Niagara Falls with the projected Park at Fort Erie, and the possible construction of an electric railway connection between Buffalo and the Falls would greatly enhance the value of the whole frontage, I am of the opinion that the majority of the proprietors would deem this a compensation in part for the lands taken.

It seems to me that a work of this nature should have the cordial support, financial and otherwise, of the municipalities through which the road passes; and that an effort should be made to enlist their co-operation when the time for action arrives.

The whole respectfully submitted,

(Sgd.) JAMES WILSON,
Superintendent.

Niagara Falls, Oct. 10, 1898.

APPENDIX F.

SUPPLEMENTARY REPORT ON THE PROPOSED PARK AT FORT ERIE.

J. W. LANGMUIR, Esq.,

Chairman.

DEAR SIR :—In accordance with the instructions contained in the minute of the Board dated July 3rd, 1898, I beg to submit the following supplementary report on the proposal to take over the ordnance lands at Fort Erie, and to improve and maintain them as part of the general park system.

As noted in my report of date August 25th, 1896, the following lands are still vested in the Dominion Government, viz :—

(a) The grounds comprised in the reserve about the old Fort Erie.

(b) The lands used as station grounds of the Buffalo and Goderich Railway prior to the building of the International Bridge, but abandoned for railway purposes in 1873.

(c) Sundry village lots at one time disposed of by the Government, which have been abandoned by the purchasers and have reverted to the Crown.

(d) The highway along the river fronting a'l these several properties.

Of these several parcels of land the two first mentioned are suitable for development and park areas ; but after careful examination I am still of the opinion that the best use which could be made of parcel (b) would be to borrow from it sufficient material to complete the development of the foreshore lying in front of the grounds of the old Fort, according to the scheme outlined in the plan attached hereto ; and afterwards to divide it up into villa lots with graceful, well planted avenues and shrubberies, reserving however ample space in which to lay out a play ground and ball green, of generous dimensions, as an adjunct of the park for the perpetual use of the citizens.

On an examination of the map submitted herewith, it will be observed that it is proposed to give the old Fort grounds a substantial back ground of forest trees of irregular outline, but so laid out as not to encroach unduly upon the remains of the earthworks forming the outer defence of the fortifications.

The northerly corner of the ground being the position which was chiefly used as a military burying ground during the war of 1812-14, and where so many brave men lie buried, it is proposed to keep intact, only planting a few trees of weeping habit in vacant spots, to define the character of the place, and in order to preserve and perpetuate this lonely " God's acre " with something like Christian respect.

The present roadway in front is of the most primitive kind, and requires to be made into a good well-rolled macadamized road, properly graded and aligned, the ground on either side being levelled and surfaced with good soil and seeded down with lawn grass, with a row of suitable indigenous forest trees on either side following the general direction and grade of the road ; and at a convenient distance therefrom a gravel pathway is proposed, suitable for bicycles or pedestrians, and extending across the whole of the frontage a distance of about 500 yards.

As all these grounds are at present used simply as a commons, where cattle roam at will, and in which it would not be possible to preserve young trees or shrubs from injury, it is proposed to fence in the property, the front having ornamentally turned and painted cedar posts and twisted galvanized steel wire fencing, so placed as to prevent the entrance of hogs or cattle.

As the surface of the ground outside the fortifications is in places very broken and rough, it is proposed to even it off, so that all the space to be left unforested may be kept well mowed and free from weeds, the slopes of the earth works being attended to by hand.

It is not proposed to construct any pathway through the grounds, it being preferable that free access shall be had to all points over the surface of the sod.

The walls of the Fort which remain standing it is proposed to cover with creepers of various kinds; but it is not proposed to make any repairs or replace any of the stones which have from time to time been thrown down.

None of the graves are now marked by head boards or stone monuments. The exact location of the burial place of even the officers who fell in the engagements has now been forgotten; and in fact it is not easy to trace the burial plots in any parts of the grounds, or to realize that many hundreds of soldiers—British and American—lie beneath the sod at this place. The grounds therefore do not present any of the appearances of a cemetery; and while nothing should be done to revive or restore that character to the place, yet it may be considered advisable to erect at some future day a memorial cairn or some simple form of monument by which to tell succeeding generations of the stormy events and the great sacrifices of life and treasure made at this historic spot in the war of 1812-14.

In respect to the best mode of treatment to be given the fore-shore in order to make it harmonize with the reserve about the Fort, there is, in my opinion, but one means to accomplish this in a manner at all worthy of the situation, and that is to take out of the shallow bed of the river and from the shore between low and high watermark, sufficient stone to construct a substantial sea wall across the whole of the front, and to fill up behind this with soil, so as to form a grand promenade with trees and shrubbery background. The wall could be ornamented with a rustic stone revetment and be equipped with ordnance of the time the Fort was constructed by the British and American armies.

This work would of necessity be somewhat costly; but if the principle and design are approved of, its construction need not be undertaken until funds are available for it, as the development of the grounds about the Fort can be gone on with quite independently.

The former railway station grounds, comprising some 25 acres in a triangular form and abutting on the old road bed by which the railway approached the water front in the Village, I have shown laid out into villa lots of commercial size. The old roadbed has been acquired by the Village for a street, and forms the chief route by which travel seeks the shore of Lake Erie west of the Erie Park.

From this land a considerable quantity of filling could be taken with advantage, and this could be utilized in making up the grand promenade before alluded to, as well as filling some low spots at the north-east corner of the plot. In order to provide a more graceful driveway between this plot and the Fort Erie park, a corner of land lying between it and the lake shore drive, of little present value, has been taken in, and affords a better arrangement of both drives and villa lots. The scheme outlined on the plan is of course tentative, and it may be found desirable to make some changes therein; but from this it can be seen how advantageously the land will divide up into desirable locations for either summer or winter homes.

The ball grounds shown are of an oval shape, 200 yards in its longest diameter and 150 yards in its greatest breadth. This size will admit of one end being kept for lawn tennis and croquet grounds—abundance of space being left for base-ball and other games.

Doubtless the laying out and planting of this parcel, and the draining, levelling and surfacing of the ball ground will require to be taken in hand before the villa lots can with advantage be disposed of; but in all probability the sale of the lots will ultimately more than recompense the outlay involved, and possibly yield a substantial moiety of the cost of maintaining the Park.

The whole respectfully submitted,
(Sgd.) JAMES WILSON,
Superintendent.

Q. V. N. F. Park, Niagara Falls, October 10th, 1898.





REPORT

OF THE

ROYAL COMMISSION

ON

FORESTRY PROTECTION IN ONTARIO

1899

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO.



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To His Honor,

THE LIEUTENANT GOVERNOR OF THE PROVINCE OF ONTARIO :

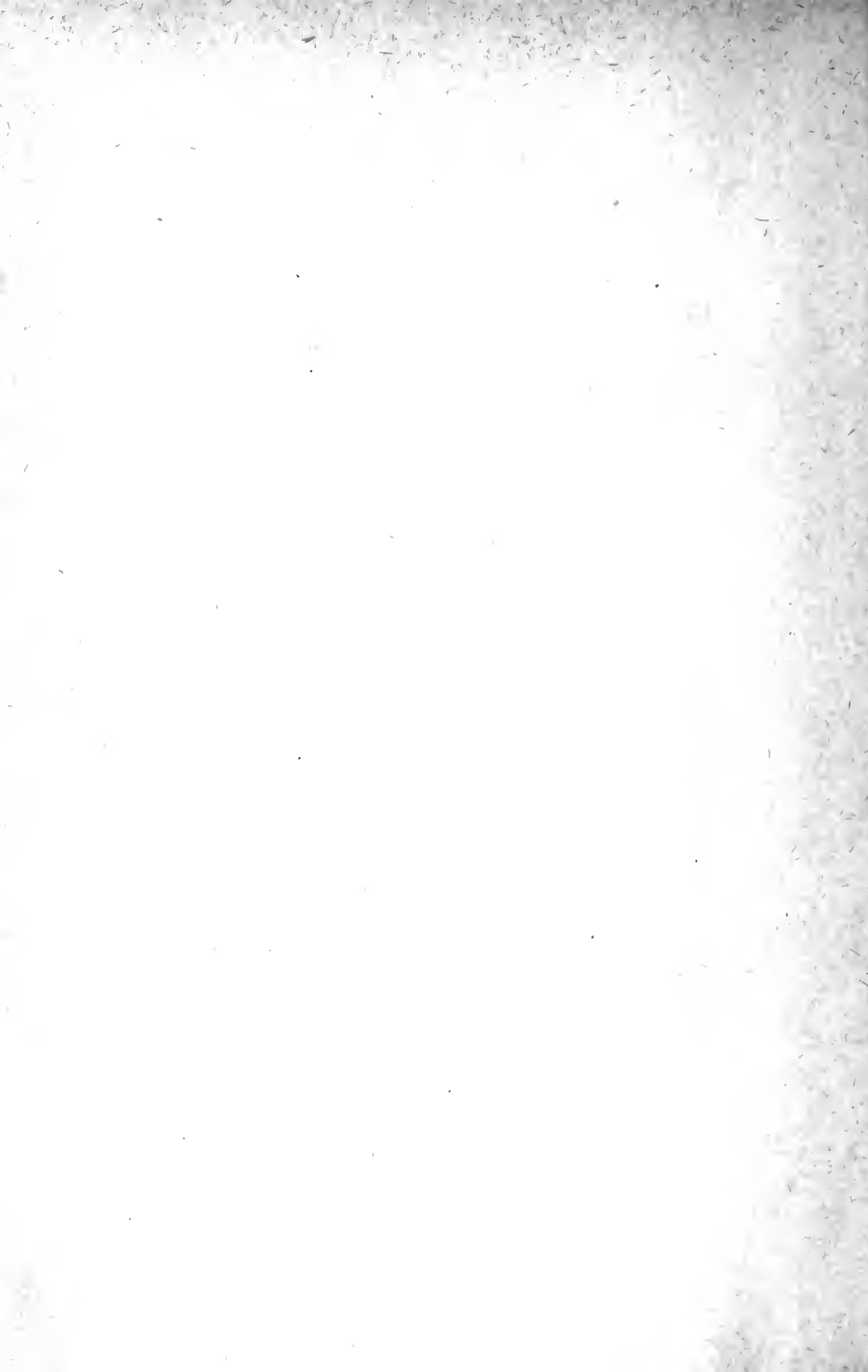
SIR,—I have the honor to transmit herewith, the report of the Royal Commission appointed in June, 1897, to investigate and report on the subject of “restoring and preserving the growth of White Pine and other timber trees upon lands in the Province which are not adapted for agricultural purposes or for settlement.”

I have the honor to be,

Sir,

Your obedient servant,

THOMAS SOUTHWORTH,
Secretary of Commission.



APPOINTMENT OF THE FORESTRY COMMISSION.

Early in 1897 the following memorandum was addressed to the Honorable the Commissioner of Crown Lands :

HON. J. M. GIBSON,

Commissioner of Crown Lands :

SIR,—In accordance with the instructions received on my appointment, I have devoted a good deal of time and study to the question of the feasibility of restoring and preserving the growth of white pine upon lands not adapted for settlement and which have been wholly or partially cleared either by lumbering operations or by fire. Until lately such a measure has not been considered possible except at an outlay which, under existing circumstances, would preclude its adoption. Recent investigations, however, have thrown new light on the matter by dispelling the erroneous views formerly generally current, and still held by some, as to the natural process of forest reproduction. It was popularly believed that when the original pine forest was destroyed and the soil remained uncultivated, the succeeding crop of spontaneous vegetation consisted in all cases of trees of a less valuable character, such as poplar, birch, bird cherry, and jack pine, and that some natural law precluded a second growth of white pine. The circumstance which gave color and plausibility to the theory was that in the majority of cases lumbered over lands were subjected to the ravages of fire, frequently more than once, which swept away not merely the undergrowth but the seeds deposited in the forest soil, so that when after the lapse of years vegetation again appeared, the lighter seeds, carried long distances by the wind, were the first to occupy the soil.

Careful examination of many cut-over tracts and information derived from various sources, affords abundant evidence that while the result of repeated fires may be to utterly destroy the white pine so as to prevent its spontaneous reproduction, the first crop will naturally and as a rule be succeeded by a speedy growth of its own kind, and that where protection from fire is afforded these seedlings supply the vacancy left by the removal of the original forest and furnish a merchantable crop within a reasonable time. Already there are large areas of cut and burned over land on which young white pines are found intermixed with less valuable trees which only require to be guarded against forest fires to yield a profitable crop long before the present virgin timber resources of Ontario are exhausted. Even after a district has been burned over white pine or spruce will spring up where the seeds latent in the soil have not been burned, or where enough of the original trees remain to furnish seed. Near the village of Plevna, in the county of Addington, a tract of land of considerable extent has been, as you are aware, withdrawn from settlement on account of the valuable crop of young pine timber which has grown up during the past twelve or fourteen years' immunity from fires. There are many such tracts scattered throughout the Province unsuited for general agriculture which will in due course contribute to the timber supply, unless, as was the case with a fine crop of young pines in the township of Methuen last year, the ravages of fire prevent this desirable result.

The problem of reforestation is greatly simplified when it is understood that all that is really required to be done in most cases to secure a certain if somewhat tardy restoration of the original forest growth is to allow the reproductive energy of nature to have full play, with immunity from fire. So long as it was supposed that when the first pine crop was removed the second growth was invariably of an inferior and comparatively valueless character, and that nothing short of artificial planting at enormous cost would restore the pine growth, it is not surprising that a policy of mere exploitation was pursued by which it was sought to harvest the original crop of virgin timber as fast as the demands of the market warranted, and in a manner that would provide the greatest revenue to the Province.

Since it has been established that it is possible to profitably grow successive crops of our most valuable trees on our non-cultivable lands, the question of the cheapest and most expeditious plan to pursue in this regard becomes very important. The greatest factor is of course the prevention or lessening of forest fires, and in the effort to do this many

things must be considered. The withdrawal of certain lands from settlement, the degree of restriction found necessary upon the liberty now enjoyed by hunters, tourists, prospectors, trappers, and others in the Crown domain, the means of checking fires once started, and many other things must be carefully considered in enacting legislation with this aim in view.

While the adoption of a system of scientific forestry as practiced in Europe might be advantageous and would certainly increase considerably the future yield of any area, so managed, it is not within the scope of the present communication to urge so extensive and radical a change in our methods of Crown Lands administration. With the limited information at present available as to the extent, location and surrounding conditions of such areas as it might be desirable to withdraw from settlement and keep as permanent timber reserves, it is impossible to undertake the presentation of any comprehensive scheme for the selection, care and management of such reserves.

I beg leave, therefore, to earnestly urge upon the Government the desirability of appointing a competent commission to go thoroughly into the whole question of forest management for the Province. Such commission should be under the general direction of the Commissioner of Crown Lands. It should be instructed to personally inspect as large an area of the cut over Crown Lands of the Province as possible, and report as to the most suitable areas for permanent forest reserves, the lots suitable for general agriculture, and having regard, in the location of reserves, to their probable influence on climate and water supply. The Commissioners should also, in the case of such lands now under license, ascertain on what terms it can be released if found advisable; by interviews with lumbermen and otherwise investigate thoroughly the problem of forest fires and the means for their prevention and suppression, and, in general, submit plans for the guidance of the Legislature in adopting a system of forestry that will be applicable to the conditions existing in Ontario. As for this object it is important to secure the advice of a trained forestry expert, the Commission should be empowered to engage a specialist having an acquaintance with the best European forestry systems, as well as some knowledge of conditions existing upon this continent.

If I may be allowed to make suggestions as to the personnel of the Commission, I would submit the names of A. Kirkwood, chief clerk of sales branch; J. B. McWilliams, superintendent of forest rangers, and myself, all officers of the Department of Crown Lands.

In any reconstruction of forestry methods, it is highly important that the timber industry, which, next to agriculture, is the largest in the Province, be carefully considered, and I would therefore suggest that there be added to the Commission two prominent and representative lumbermen.

I have the honor to be, etc.,

THOMAS SOUTHWORTH,

Clerk of Forestry for Ontario.

The Commissioner of Crown Lands signified his approval of the proposition and in a memorandum to council remarked that he had "for some time past had under consideration the important question of what steps might, without at present incurring any large expenditure, be adopted that would be of practical utility in restoring and preserving the growth of white pine upon lands in the Province which have been cleared or partially cleared by lumbering operations or by fire, and which are not adapted for agricultural purposes. The time seems to have arrived when a beginning should be made in the selection of portions of the public lands by way of reservations of growing white pine, which, if adequately protected from fire, may in the future become valuable portions of the timber assets of the Province. The expense of making selections from time to time need be but slight; as a rule the advice of the officers of the Department will be sufficiently reliable to act upon. It is, however, in the practical initiation of this policy, desirable that the Department should have the fullest information and the best advice obtainable, and the undersigned (the Commissioner of Crown Lands) entirely concurs in the suggestion of Mr. Southworth that a commission should be constituted for the purpose of reporting on this subject in its various phases and relations."

THE COMMISSION.

(Great Seal.)

GEORGE A. KIRKPATRICK.

Province of Ontario.

VICTORIA by the Grace of God, of the United Kingdom of Great Britain and Ireland, QUEEN, Defender of the Faith, &c, &c.

To EDWARD WILKES RATHBUN, of Our Town of D^osseronto, in Our County of Hastings, Esquire, JOHN BERTRAM Esquire, and ALEXANDER KIRKWOOD, Chief Clerk of the Lands Branch of the Crown Lands Department of Ontario, both of Our City of Toronto, in Our County of York. JOHN BANNON McWILLIAMS, of Our Town of Peterborough, in Our County of Peterborough, Superintendent of Forest Rangers, and THOMAS SOUTHWORTH, of Our said Crown Lands Department, Clerk of Forestry, Our Commissioners in this behalf, Greeting :

ARTHUR S. HARDY, { Whereas in and by Chapter Seventeen of the Revised Stat-
Attorney General. { utes of our Province of Ontario, entitled "An Act Respecting
Inquiries Concerning Public Matters," it is enacted that whenever the Lieutenant-Governor of our said Province-in-Council deems it expedient to cause inquiry to be made into and concerning any matter connected with the good government of our said Province, or the conduct of any part of the public business thereof, or the administration of justice therein, and such inquiry is not regulated by any special law, the Lieutenant-Governor may, by the commission in the case, confer upon the Commissioners or persons by whom such inquiry is to be conducted, the power of summoning before them any party of witnesses and of and requiring them to give evidence on oath, orally or in writing (or on solid affirmation if they be parties entitled to affirm in civil matters), and to produce such documents and things as such Commissioners deem requisite to the full investigation of the matters into which they are appointed to examine, and that the Commissioners shall then have the same power to enforce the attendance of such witnesses and to compel them to give evidence and produce documents and things, as is vested in any Court in civil cases ; but that no party or witness shall be compelled to answer any question by his answer to which he might render himself liable to criminal prosecution.

And whereas it has been made to appear to the Executive Government of our said Province, that the subject of restoring and preserving the growth of White Pine and other timber trees upon the lands in our said Province which are not adapted for agricultural purposes or for settlement, should be investigated.

And whereas the Lieutenant-Governor of our said Province of Ontario-in-Council deems it expedient that inquiry should be made into the said subject.

Now know you that we, having and reposing full trust and confidence in you the said Edward Wilkes Rathbun, you the said John Bertram, you the said Alexander Kirkwood, you the said John Bannon McWilliams, and you the said Thomas Southworth, do hereby, by and with the advice of our Executive Council of our said Province, appoint you the said Edward Wilkes Rathbun, you the said John Bertram, you the said Alexander Kirkwood, you the said John Bannon McWilliams, and you the said Thomas Southworth to be our Commissioners in this behalf to inquire into and report to our said Lieutenant Governor upon the subject of restoring and preserving the growth of White Pine and other timber trees upon lands in our said Province which are not adapted for agricultural purposes or for settlement, giving to you, our said Commissioners full power and authority to summon before you any party or witnesses, and to require him or them, to give evidence on oath, orally or in writing (or on solemn affirmation if such party or witnesses is, or are entitled to affirm in civil matters), and to produce to you our said Commissioners such documents and things as you may deem requisite to the full investigation of the premises, together with all and every other power and authority in the said Act mentioned and authorized to be by us conferred on any Commissioner appointed by authority or in pursuance thereof.

And we do require you our said Commissioners forthwith after the conclusion of such inquiry to make full report to our said Lieutenant-Governor touching the said investigation, together with all evidence taken by you concerning the same.

To have, hold and enjoy the said office and authority of Commissioners for and during the pleasure of our said Lieutenant-Governor.

In testimony whereof, we have caused these our letters to be made patent, and the great seal of our said Province of Ontario to be hereunto affixed.

Witness, the Honorable George Airey Kirkpatrick, member of our Privy Council for Canada, and Lieutenant-Governor of our said Province of Ontario, at our Government House, in our City of Toronto, in our said Province, this fourth day of June, in the year of our Lord one thousand eight hundred and ninety seven, and in the sixtieth year of our reign.

By command,

E. J. DAVIS,

Provincial Secretary.

ORGANIZATION OF THE COMMISSION.

Mr. Southworth was appointed Secretary of the Commission by Order-in-Council, and, pursuant to his call, the Commissioners met for the first time on July 7th in the Council Chamber at the Parliament Buildings. Besides the members of the Commission, there were present Hon. A. S. Hardy, Premier and Attorney General, and Hon. G. W. Ross, Acting Commissioner of Crown Lands, Hon. J. M. Gibson, Commissioner of Crown Lands, being in England at the time.

The Attorney-General, who from his long experience as Commissioner of Crown Lands had taken a deep interest in the question of reforestation, expressed his appreciation of the sacrifice made by Mr. Rathbun and Mr. Bertram in consenting to serve on the Commission with no emolument for their services, and also referred briefly to the magnitude of the interests involved in the enquiry, and the vast importance to the Province of adopting some plan by which, with small expenditure of money, the large areas of broken land now lying waste and periodically ravaged by fire, could be restored to a permanently profitable condition.

Upon the withdrawal of the Ministers, on motion of Mr. Bertram, Mr. Rathbun was elected chairman and Mr. Kirkwood vice-chairman of the commission. It was decided to first visit some burned over territory in the county of Peterborough, and after a general discussion of the situation the meeting adjourned.

No attempt will be made to give a detailed report of the various meetings of the Commission, which were held in Toronto, Deseronto, and in the field.

Members of the Commission personally visited the townships of Smith, Harvey, Galway and Burleigh, in the county of Peterboro; Hichinbrooke in the County of Frontenac; the territory along the north shore of Lake Nipissing and down the Vermilion river in the township of Louise; the country around Thessalon, Algoma Mills and Killarney; the townships of Carlyle, Goschen, No. 67, and Humboldt; and other points on the north shore of Georgian Bay and in the neighborhood of Sault Ste. Marie; the Rainy River Valley; Thunder Bay District, and they also visited a small section of the immense territory north of the height of land lying along the Missinabi waters

The area of the Province is so large that it would take a long time to inspect the different sections of it, yet the Commission feel that they have secured sufficient information in their various visits to the forest in different parts of the Province to reach tolerably safe conclusions in several important particulars of forest growth in Ontario, while fully conscious that much remains to be learned concerning many features of the somewhat complicated condition of the problem submitted to them. Particularly is this the case concerning the white pine, our most valuable timber tree, which grows and thrives under such widely varying circumstances as to require years of patient study for a thorough knowledge of its sylvicultural characteristics.

THE FORESTRY PROBLEM IN ONTARIO.

GENERAL PRINCIPLES.

It is well understood by those who have given the matter any consideration, that all vegetation plays a most important part in making the earth habitable for mankind. In the process of assimilating food the plant exhales the oxygen so essential to the maintenance of animal life, and absorbs the poisonous carbon dioxide given off by decaying matter, and by animals in the process of respiration. In this way vegetable life and animal life form the proper corollary for each other, and help to maintain that equilibrium in the atmosphere necessary for the health of both.

WHERE TREES EXCEL.

Owing to the great area of surface in a limited space presented by the leaves of trees they exercise a correspondingly greater influence in this respect than other forms of vegetation.

The beneficial effect of trees on the atmosphere is not confined to the chemical action before referred to. Forests, groups of trees, and every single tree according to its situation, all have power more or less to modify the surrounding atmosphere, making it cooler in summer and warmer in winter than would be the case if the trees were absent. and thus they are a powerful factor in preserving equality of climatic conditions. The temperature of the interior of trees has a much narrower range than the air, and it can thus be easily understood that when the general temperature drops below freezing point the air in the interior of a forest is much warmer than that outside its influence, and a corresponding difference would naturally exist in the summer with the added effect of the shade offered by the leaf canopy, by which the solar radiation from the soil is retarded.

Whether the more even temperature of a tree is due to any chemical action going on in the process of cell building, or merely to the water drawn up from the subsoil to the leaves, being cooler in the spring and summer and warmer in the winter than the surface of the soil or the air, is not definitely known. In any event trees act as equalizers of temperature to a great degree by the direct action of the tree trunks on the air.

This action of the tree trunks on the atmosphere is further affected by the discharge of large quantities of water taken up from the subsoil by the roots and transpired through the leaves of trees. The superficial surface exposed by the leaves of trees varies largely according to the variety, but as an example we quote from an article appearing in the *Popular Science Monthly*, for March, 1899, by Stephen Smith, M.D., L.L.D., on the subject, "Vegetation a Remedy for the Summer Heat of Cities." Dr. Smith says, "the Washington Elm of Cambridge, Mass., a tree of moderate size, was estimated some years since to produce a crop of seven million leaves, exposing a surface of two hundred thousand feet, or about five acres of foliage. From this it may readily be seen that a large amount of moisture is given off by an acre of trees such as this. Prof. Fernow, of Cornell College of Forestry, states that "the total quantity of moisture returned into the atmosphere from a forest by transpiration and evaporation from the trees and soil, is about seventy five per cent. of the precipitation."

As the evaporation from the open field is only about forty per cent. of the rainfall, it would seem that the forest from taking up more rainfall, would tend to greater drought but it must be remembered that the water transpired through the leaves of trees is taken from the underground supply, that the evaporation from the soil under a forest is only twelve per cent. instead of forty in the open field, the balance being made up from sources that do not affect the surface moisture. It is worthy of notice, also, that other forms of vegetation transpire about as much moisture per acre as trees, and owing to the shallower root system, the surface supply of water is drawn upon.

All this goes to show the manifest advantages of tree planting in cities and towns from a sanitary point of view, and at the same time the moral benefit to a community of the beautifying effect of shade trees is a consideration not to be lost sight of.

TREES ON FARMS.

Aside from the advantages of roadside and lawn planting, the beneficial effects which would accrue from utilizing every corner, every ridge, or other uncultivated spot where a tree can be made to grow, the placing of wind breaks and shelter hill belts on all farms in our settled districts, would enhance the value of such farms very materially in the improved appearance, and because of the mitigation of the severity of the cold of winter and the heat of summer, caused by the presence of the trees. This is aside altogether from the purely economic advantages of a good wood lot on a farm. It is not contended that it would be wise to convert a valuable wheat field into a forest, but there are few farms in this Province on which there are not some rough, broken or hilly places, now affording only indifferent pasture that would not yield far greater returns under a crop of the right sort of trees, than in their present condition. True, we cannot sow and reap our crop in the same year as with wheat, but every year added to the age of the tree crop adds to the capital invested, and increases the selling value of the farm.

REFORESTATION.

Important as is the presence of trees to the settled parts of the Province, both urban and rural, the importance is lost sight of when considering the far greater necessity of restoring a forest growth of desirable trees to large districts of the Province from which fire has removed the original forest, and where the land is unsuitable for general agriculture. Herein lies the real question of Canadian forestry; what should be our proper course in utilizing forest products and in preserving the productive power of our forests.

Forestry is farming, with trees as the main crop. Sæd time and harvest extend over a long or short period of years, dependent upon the sorts of trees and the purpose for which they are grown. Because of the long time required for a crop of trees to reach the most profitable age for cutting, few individuals are financially able to adopt this branch of farming on a large scale, consequently, and because of the general benefit to the community as a whole derived from large portions of the country being maintained in forest, forestry should be conducted by the State, or in other words, by the people as a whole and not by individuals for individual profit, often to the detriment of the best interests of the community.

ONTARIO'S POSITION.

Fortunately for us, Ontario is happily situated in this regard. Of the 142 millions of acres comprising the Province about 120 millions of acres are still owned by the Crown. Out of this nearly 22,000 square miles or 14 million acres are under license to lumbermen, but even in this case the Crown still owns the land, the standing timber only having been disposed of.

The Province of Ontario, therefore, owns one of the largest forest estates held by any State in the world. We were given that great forest upon our setting out for ourselves, and until recently we have done no more than to remove the original crop by axe and fire, making little provision for the future. For many years the object aimed at by our legislators consisted in removing the standing timber to assist the settler in clearing the ground for his farm. The more valuable timber was sold to the best advantage, and the proceeds went to swell the revenue of the Province. As clearing went on by the lumberman and the fire; that nearly always followed him, it was found that there were extensive areas not suited for tillage. In some cases settlers took up this land, and wasted years in proving it unfit for general farming, in other cases it was allowed to grow up to a young forest for a few years to be fire swept again.

To restore these fire swept tracts of land to a productive condition so that they will furnish us with a continual supply of timber for fuel and the arts, to prevent the other non-tillable areas now being exploited for the original crop of timber, from being allowed to get into an unproductive condition is the forestry problem awaiting solution in Ontario.

 CONDITIONS DIFFER.

No two countries present the same problem in this respect; conditions here are so different from those existing in Europe that it would be quite out of the question to adopt the intensive and expensive forestry systems of Germany or France in this country. We may profitably investigate these systems and see what they have accomplished with the means at their disposal, but we must evolve a system of our own, suited to our own needs and circumstances. What may be correct forestry practice in France or Germany, where every broken branch or fallen limb can be sold, where even the little twigs are tied in bundles of faggots and disposed of and the leaves are valued as stable litter, would not pay here. Much labor may be expended in seeding or planting where labor is cheap, and all the product high priced, but here in Canada we have to do with entirely different economic problems, and so must find other solutions.

To contribute in some degree towards such a solution is, we take it, the object of the Forestry Commission. The subject is a very complex one, the results of a proper solution vast and far reaching, and it is not of course expected that we can in so short a time produce a system of forestry that will be complete and symmetrical. There are difficulties in the way that make the immediate adoption of radical changes impracticable. At the same time we trust to be able to throw some light on the question and aid in carrying out the forward policy recently inaugurated by the Government of the Province.

The scope of our enquiry mainly concerned land owned by the Crown: lands under license to lumbermen; lands not yet licensed or sold, on which the original forest is still standing; lands that have been cut and burned over, but are not suitable for tillage; how best to keep in profitable condition the areas not yet denuded, and to restore to the same condition the untillable lands from which the timber has been removed.

The economic aspect of the question is necessarily the most prominent, but there are cognate questions only less important than the main one, and intimately related to it.

The Province of Ontario is so great in extent that it includes somewhat different climates and a variety in the make up of its forests. For this reason it will be found expedient to consider the main forestry divisions of the Province, and indicate so far as possible the best treatment to give each class of forest in its various stages of growth.

 SOUTHERN FOREST DIVISION.

From a forestry standpoint the Province of Ontario is composed of three main divisions, which will be referred to as the Southern, Central and Northern divisions.

The Southern division extends from near the confluence of the Ottawa and St. Lawrence Rivers, the most easterly point of the Province, along the St. Lawrence River and the Great Lakes to Cabot's Head, at the entrance of Georgian Bay, around the west and south shores of the bay, to where the Laurentian and limestone series come in contact with each other on the east side of the bay; continuing eastward in an uneven line along the southern boundary of the Laurentian ridge to the Ottawa River.

This division is one of the finest agricultural districts in North America, and forms the present settled part of the Province. It was, before settlement began, covered with a dense forest of hardwood interspersed with conifers, single trees or groups occurring where the soil was suitable.

The very heavy crop of hardwoods with which the ground was everywhere covered made the work of clearing it for cultivation very slow and laborious to the early settlers. Not only had the trees to be felled, there being a very limited market for the hardwoods, they had to be burned in log heaps, an operation entailing a great deal of work. Naturally the early settlers grew to look upon trees as enemies to their well-being, to be got rid of if possible. It was not long, in the settler's war of extermination, till he was assisted by the lumberman. The magnificent specimens of white pine, that stood in their grandeur towering far above the hardwoods, were floated down the St. Lawrence to Quebec and then sent to Great Britain as masts or square timber, and in time some of the hardwoods came to have a value beyond that of the potash distilled from the ashes gathered up from the log heaps. Gradually saw mills were erected in various places, and the possibility of selling his logs furnished another inducement to the pioneer farmer to get

rid of the trees on his holding as expeditiously as possible. Between the need of the farmer to clear his land for farming, and the wants of the sawmill man, much land in this Southern Division has been cleared of trees that would have been far better kept in permanent forest. It was a very shortsighted policy that removed the trees from the hillsides, and the hills, from broken and uneven land, and along the head waters of the streams, allowing the blasting and drying wind an uninterrupted sweep across the country, allowing the washing of the soil of the hillsides into the valley below to the detriment of both, and removing the causes that kept the streams and springs perennial.

PROPER FOREST AREA.

Long observation and experience has demonstrated that, aside altogether from the needs for timber and fuel, the welfare of the community requires that 20 to 25 per cent. of the total area of a country should be tree covered. Instead of 25 per cent. of forest, some of the counties in this Southern Division have not over 5 per cent., and this in such scattered clumps of scraggy trees as to be of little use for climatic or water supply purposes. Nearly every spring the Grand River overflows its banks and causes heavy damages at Brantford and elsewhere. This stream flows through Brant, Waterloo and Peel. None of these counties have over 15 per cent. of wood land—Brant has only 7 per cent., Peel about the same, Waterloo has about 13 per cent.

THE FARM WOOD LOT.

It is now becoming better understood that on all gravelly ridges and sand flats trees are by far the most profitable crop; cut them all off in such places, and the soil is so completely exhausted in a few years that it will hardly grow a crop of weeds. Such localities were often covered with conifers in the original forest, and it is well known that coniferous trees (pines in particular) require less moisture than deciduous trees and can grow to fair dimensions on comparatively poor soil.

Even in the case of the richest land where it is hilly and with steep inclines, it is not wise to clear it all, the value of many a farm is so poured down the creeks or rivers from year to year, by the rains having free course down these hillsides, that it becomes useless for regular cropping. When this state of affairs is found to exist the proprietor should at once see that his property is retained intact by planting trees where needed, and the forest cover, when once established, permanently retained. The duty of the hour is for every farmer, every landowner, to make a close study of his property and grow what it is best adapted for. He will find it pays best to grow trees in some places, grain crops in others. Every hill and hillside where the descent is so sharp as to allow the rain to wash the soil away, every ridge and sand flat, every place where the ground is so uneven that it cannot be cultivated to advantage, every waste place on the farm, should be planted with trees of whatever variety is most suitable for the different places, remembering that the most successful cultivation can be carried on when forests are intermixed.

If, for instance, it was thought desirable to obtain a growth of white pine on a gravel ridge, a beginning should first be made with some quick growing deciduous tree, and after a few years the pine would find the requisite condition of light and shade to grow up into a valuable forest tree.

If this programme were to be adopted by the farmers of Ontario it would prove of immense benefit and profit to themselves, and a boon to the community as a whole. Trees in the exercise of their functions would make the country a healthier one to live in, purifying the atmosphere, conserving the water and lessening the tendency of creeks to run dry, moderating the temperature both in summer and winter. They shield the crops from the drying winds of the summer, and shelter the farmstead against the stormy blast of winter, and they prevent the snow from piling up along the fences, leaving the fields bare to the menace of the fall grain.

If the planting of trees became general in the places indicated, it would change the whole outward appearance of the country, and make the Province of Ontario one of the most beautiful and healthful places on the face of the earth, and add to the value of every farm, without decreasing by a single acre the cultivable area of the Province.

THE CENTRAL DIVISION.

The Laurentian or Central Division of Ontario extends from a short distance west of Ottawa city to Rat Portage, about 1,000 miles in a straight line east and west. The southern boundary of this district is the northern boundary of the Southern Division as far west as Georgian Bay, then following the coast line of Lakes Huron and Superior and the international boundary line between Canada and the United States to the northwest angle of Lake of the Woods. The northern boundary may be taken as a line running a short distance north of the watershed dividing the Hudson Bay basin in Ontario from the basin of the Great Lakes.

HOME OF THE WHITE PINE.

This district, which is more particularly described in its topographical features elsewhere in this report, is of rocky and uneven surface, interspersed with areas of good land and innumerable lakes and streams. It is peculiarly the habitat, in Ontario of that most valuable of all trees in North America, the white pine (*Pinus Strobus*) which, while growing luxuriantly interspersed amongst deciduous trees in some sections of the Southern Division, is here the dominant tree, best able by its leafage and root system to sustain life and dominate other varieties in this extensive district. With it may be associated the red or Norway pine (*Pinus Resinosa*), not so valuable for commerce, but living and flourishing under the same general conditions.

A considerable number of settlers have entered this district, many of whom have done well, though others have located upon land that had afterwards to be abandoned, being too shallow for cultivation and better fitted for forest growth.

It will require much careful investigation and research to decide how far settlement should be permitted in this Division. Judging by the amounts paid as bonus for timber at recent sales, it is evident that for the last decade or two the value of this country while under forest growth, has appreciated far more rapidly than any alluvial lands fit for cultivation. The quantity of land where good farms could be obtained sufficiently near each other to form a thriving settlement, is insignificant in comparison with what is held by lumbermen under license from the Government, and lands still held by the Government not yet offered for sale.

It is fortunate for the Province of Ontario that the lands licensed to lumbermen have not been sold in fee simple, and that under the form of license in vogue regulations may be adopted if desired to prevent the complete denudation of these areas. In the neighboring State of New York the people are expending millions to acquire possession of forest lands in the Adirondack territory, for the purpose of creating forest reserves. With us no such expenditure is needed. The ownership of the land has never passed from the people, and when our forestry policy is matured, but little extra expenditure will be needed to make it operative.

The Adirondack territory in New York corresponds largely with this Central Division in Ontario, in forming the watershed of the State. In this Central Division are the sources of all our principal streams flowing both north and south, and upon the maintenance of forest cover there depends their future regularity of flow.

Much of this great territory has been more or less exploited by lumbermen, and too frequently have forest fires completed the work of forest removal begun by them. The greatest problem confronting the people of Ontario at the present time, is how to reforest these cut over and burned areas in the most expeditious and economical manner.

The importance of retaining the crown canopy of green forests of any sort to control the flow of streams, while inducing the growth of the most valuable trees of commerce among them, can scarcely be overestimated. Aside from the question of water supply and climate, that of Provincial revenue is sufficient to make this problem a serious one, and of far reaching consequence to the people of the Province. Elsewhere in this report will be found some hints, from the experience of practical lumbermen, upon the treatment of different kinds of forests with a view to their continuation and improvement, but apart from that there stands out prominently a few main factors by which we must be guided.

SOME ESSENTIALS.

All unregulated fires must be strictly guarded against and prohibited

Every acre of forest lands under license, and all Government lands in their immediate vicinity or wherever prospectors or tourists are allowed to go, should be under the supervision of competent fire rangers. *strictly under Government control*, and clothed with full power to call to their aid needful assistance to extinguish fires.

Young growing trees too small to cut profitably and often neglected by licensees as of no value, should be jealously guarded as the source of future wealth, and all isolated pine trees or small groups of trees still living after a fire has passed over a district, should be taken care of as the parents of future forests.

Too rapid and especially too close cutting where the forest is mixed should be discouraged; better to have a moderate and continuous income from this source, than a larger but brief income with wasteful or extravagant cutting.

No forest lands should be left derelict. When a licensee has practically abandoned his holding by failing to pay his ground rent, the Government should resume possession and begin active management of the territory with a view of protecting future growth.

The unsold lands in the Central Division, whether under license or not, should be carefully examined by competent men, and when the conditions are found to be favorable, by the absence of tillable land, or for other reasons, should be added to the forest reserves of the Province.

This is the district of watersheds in Ontario, and whatever policy may be adopted with reference to the southern part of the Central Division, there can be doubt or question that in the interests of the Province as a whole, the watershed should remain in the hands of the Government permanently and be administered as forest reserves, with regulations governing the cutting of trees.

NORTHERN DIVISION.

The Northern Division of Ontario comprises that great section of country whose streams flow into James Bay. Speaking broadly it may be said to commence a short distance north of Lake Temiscamingue, at the eastern boundary of the Province, and extends westward to the sources of the Albany River, bounded on the south by a line a short distance north of the Height of Land, and on the north by the Albany River and James Bay. It is greater in area than the other two divisions combined.

In this Division the question of preservation rather than restoration of forests has to be considered, for it has not been entered upon by the lumberman or the settler. In extent a kingdom in itself, as large as the islands of Great Britain and Ireland, its capabilities as yet but imperfectly understood, it is an asset of enormous proportions belonging to the people of Ontario, a heritage not to be entered upon lightly, but only after mature consideration, and a further knowledge than we now possess of the resources of this, at present largely unexplored land.

In a general way, we know this vast area is tree covered, with spruce the dominant tree, mixed with tamarac, cedar, Banksian pine, birch and poplar. It may be considered a spruce country, white and red pine being found only in scattered trees at a short distance north of the Height of Land. Until quite recently, spruce was regarded as a tree of little value in Ontario but the rapid increase in its consumption for the manufacture of paper, is making it only less valuable than the white pine.

THE WOOD PULP INDUSTRY.

It may be said, in passing, that the great spruce forest of the north is not confined to Ontario but extends northward on the east side of James and Hudson's Bays to Portland Promontory, a distance of six hundred miles from the southern extremity of James Bay, and on the west side of the great inland sea as far north as Fort Churchill. It requires no prophetic eye to see the time now near at hand when this part of the Dominion of Canada will be the seat of a great paper making industry, that together with charcoa

and other iron smelting works, will make this one of the busiest parts of the continent. With the great supply of raw material to be found in the district, and almost unlimited water powers this result can not fail to be achieved.

Paper making from wood pulp, for which the spruce tree has been found best adapted, has assumed such proportions in the past few years as to become a lumbering and forestry question. Already is this tree more valuable for pulp than for lumber, for which it was largely cut in Quebec, New Brunswick and the New England States. As showing how pulp mills are taking the place of saw mills in utilizing spruce forests, we quote the following from a recent issue of the "American Lumberman," in an article entitled: "From Logs to Pulpwood," "Eight years ago," the article states, "the pulpwood business on the Androscoggin River consumed 12,000,000 feet of spruce at Berlin Falls (New Hampshire), and about 10,000,000 feet of spruce at various points below on the river to Livermore. In 1898 the consumption of wood pulp on the Androscoggin River had increased from the above 12,000,000 feet to about 195,000,000 feet, or an increase of about 183,000,000 feet in eight years . . . It is a somewhat remarkable fact that on the Androscoggin River, where during the palmy days of spruce manufacture perhaps 200,000,000 of spruce timber was sawed, only one set of mills now remains, that of the Berlin Mills Company at Berlin Falls, N. H. A cord of wood manufactured into cheap newspaper may be valued at \$40, but would only be worth \$7 sawed into lumber."

Here then is the keynote of what should be done with New Ontario. Thirty three dollars of extra labor, less the profit obtained, expended on one cord of wood, would create an industry of enormous proportions and provide employment for many of the settlers—both in the forests and in the mills while the farms are being cleared.

THE NORTHERN PLAIN.

That there is a large area of land in this district fit for settlement is now well understood. It consists of a level clay plain, commencing on the east about seventy-five miles north of Lake Abitibi and extending south to Lake Temiscamingue, crossing the Moose River, with its many tributaries, the highly fertile Kenogami River district, and on to Lake Joseph, the immediate terminus of a proposed railway from Port Arthur. Where Mr. Niven, Ontario Land Surveyor, crossed the plain in running the boundary line between Nipissing and Algoma, he found it to extend about one hundred and twenty miles in width. Its centre is about the 49th parallel, the southern boundary of Manitoba. This line runs north of Lake Abitibi, which is 180 miles north of Lake Nipissing, so there can be no climatic reasons why this country should not provide homes for a happy and healthy population. The winter temperature at some places on the Height of Land is severe, but this is due rather to the altitude than the latitude. The land drops in altitude as we go north from the Height of Land, and the temperature becomes more equable, differing not much from that of Ottawa and the Lower St. Lawrence.

Throughout this clay plain, settlement should only be extended as the timber can be utilized, and not burned up as was the case with the hardwoods of Southern Ontario.

While a great deal of this north country is fit for settlement, much of it is not, and it will no doubt be found expedient to retain large areas as forest reserves. Since spruce reproduces itself readily, and owing to the smaller size required for pulp wood than for lumber, it can be cut in much quicker rotation, pulp mills could obtain a continuous supply of raw material.

As the district is so far entirely unopened it affords an opportunity for the inauguration of any policy that the experience of the past may show to be desirable. Before finally deciding upon this or any policy, further information should be acquired, and to this end a topographical and exploratory survey would be very helpful.

NORTHERN PINE LANDS.

There is a portion of this Northern district differing materially from that we have been considering; the territory lying between the Height of Land proper and the southern boundary of the great clay plain sloping towards James Bay. In this district, though spruce is now the predominant timber tree, it has evidently supplanted the pine in com-

paratively recent times. The Commissioners, in examining the district immediately north of the watershed, found isolated white pine trees, still living, of a much greater age than the prevailing spruce forest. These pines showed evidences of damage from fires years ago, having undoubtedly survived the fire that destroyed the main forest about seventy years ago. From the location and condition of these trees, and their relation to the younger forest, the conclusion was reached, that the northern limit of the white pine was at one time considerably north of the present boundary as generally recognized. White pine was, undoubtedly, indigenous to the district, and there is no reason why it should not live and flourish north of the Height of Land, so far, at least, as the rocky district extends, just as well as it grows immediately south of the divide. The climatic conditions and the soil are similar and small clumps and isolated trees make it certain that there was once in this district a great pine forest that has been pushed back and driven out by the immense body of spruce from the north.

All the forests along the canoe routes in this territory are comparatively young, the older forests having been removed by fire. Spruce is more prolific with seed than is pine, and the seed will germinate much more readily under the shade of other trees, hence in a struggle for supremacy the spruce would be able to take the ground formerly held by the pine, and that has happened.

TO RESTORE THE PINE.

As this district immediately north and south of the Height of Land, because of the nature of its soil, and because it forms the source of our streams, is more fitted for Forest Reserves than for anything else, it will doubtless become part of our permanent forest estate. Hence the officers in charge of the reserves could by degrees establish nurseries of young pine trees in suitable places, from which seed would be distributed, and in time the district would again be covered with the more valuable timber.

It should be borne in mind, in considering this question of pine north of the Height of Land, that there are vast tracts of country, away from the canoe routes, about which we know nothing. As before stated, the forests along the canoe routes are comparatively young, less than a century old, yet Mr. Niven, Surveyor, who in running the boundary line north, had to leave the streams, found a spruce forest very much older than this, in which the spruce trees were much larger than are usually seen in that country.

The fires in this country have been mostly due to the carelessness of the Indian inhabitants, and as they stick to the canoe routes most of the fires have originated there. The interior of the country has not been so generally burned over, according to Mr. Niven, and it is quite possible that further exploration will show the white pine forest to extend much farther north, in the interior, than it is found along the shores of the main streams.

FIRE PROTECTION.

We have only been able to speak very generally of this extensive district, from very meagre information, and consequently can only indicate a policy for the immediate future in general terms. The fire ranging system should be extended to at least cover the main lines of travel, and fire proclamations in the English, French and Indian languages properly posted. In this way a beginning may be made at slight expense, and important protective measures be thereby inaugurated, to show that this new country is under the care and jurisdiction of the Government of the Province.

THE PROBLEM FROM A LUMBERMAN'S STANDPOINT.

The question has now reached a stage at which the various types of forest embraced in the Crown domain should be considered with the view of adopting such special treatment in each case as its peculiar features demand in order to realize the best results. No timber berth or township can be found in the Province where all the trees are of one species, but in many tracts of smaller dimensions pine so largely predominates as to give a specific character to the whole area. In such instances the timber is frequently found at two or three stages of growth. Some very old trees may be seen, many of them

showing decay at the butt and slowly dying of old age, while the main body are sufficiently advanced to have killed off the competitors which started even with them in the race, the place of the latter having been taken in part by seedling pine or by the shade enduring hemlock or spruce. In all probability the trees of the main body commenced their growth with the usual surroundings of poplar and birch over which the pines in the course of time asserted an easy supremacy, or they may have been subjected to a severe competition with their own species or with other conifers which they have been enabled to outlive by reason of quicker growth, better adaptability to the locality or more robust qualities.

SELECTIVE CUTTING.

This type of forest is the easiest to understand and treat in accordance with the principles of forestry by selective cutting. The merchantable timber should be cut down and marketed, and many of the smaller trees, growing too close together under the shade of their neighbors should also be removed as they would ultimately die before attaining maturity. But due care should be taken to preserve the forest cover and yet to make sufficient openings in it to allow the sunlight to reach the younger trees and give the seed a chance to germinate.

When these considerations are borne in mind it will be seen that no absolute rule can be applied as to the smallest tree that should be cut, as a tree which it would be desirable to spare if growing in one situation considered with regard to its neighbors, might be clearly superfluous in another. A pine that would make a 10-inch butt log sixteen feet long would be regarded as merchantable, but it would not be good forestry practice to cut it unless a sufficient number of smaller trees be left standing near it to fairly cover the ground. It has been demonstrated by many specimens now in the Bureau of Forestry that the accelerated growth of the young trees resulting from the removal of the overtopping mature vegetation will quite equal if not surpass the total growth of the forest before it was entered upon by the lumberman. It is a question that can only be determined on the spot, how far the shade enduring varieties should be cut in a forest consisting chiefly of pine, as they may be of great use in keeping the soil of the forest covered when too great a gap has been made in the forest canopy. If the smaller but merchantable timber is to be extensively cut away the retention of the shade enduring trees is desirable if the reproductive value of the forest is to be retained.

HARDWOODS AND PINE.

In a mixed forest of hardwood and pine where the former prevails it will nearly always be found that the pine trees are large and old, the remnants of a former forest growth before the advent of the hardwood. The latter possesses such a thick shade that where it prevails pine seeds dropped under its cover either will not germinate or attain only a very sickly growth. A specimen of pine struggling to live under such conditions, examined under a magnifier showed a growth of only one inch in diameter during a period of thirty to forty years. In such a case, if the perpetuation of the hardwood forest is desired, the pine should at once be cut as fully ripe, together with as many of the large hardwood trees as are considered desirable leaving the space gained to the smaller trees. If on the other hand the district is not considered suitable for a valuable hardwood growth, it should all be cleared off, leaving a pine tree here and there in sheltered localities if possible, and the surface of the ground should be burned over to get rid of the rubbish and debris. It will then present favorable conditions for seeding by the ever-prevalent birch and poplar, to be followed by degrees by the pine seedlings springing from the scattered old trees left standing.

PURE PINE FOREST.

A pine forest may often be seen where the trees are nearly all the same age—or it may be differing by ten or twenty years, and where they have succeeded by their abundant growth in overshadowing and killing out every other variety, the only difference observable being in the diameter of the trees brought about by the diversity of their

individual surroundings. The tall and slender trees have maintained the struggle for existence with insufficient sunlight, having been overshadowed by their more favorably situated neighbors, and while they are of small diameter it would be of no use to leave them standing, as when the others were removed they would only blow down and encumber the ground. The only course to pursue if the reproductive character of the forest is to be maintained would be to preserve the trees on any neighboring ridge or hillside, the height of which would secure the distribution of the seed over a wide area, or in case the country is comparatively level, then clumps of trees growing on the highest ground available should be allowed to stand for that purpose.

After the remainder of the forest has been levelled the ground should be burned over to destroy the covering of pine needles and the litter left by lumbering operations, so as to leave the soil in the best condition for future seeding. In doing this due care should be taken to leave a cleared space around the groups left standing so that the fire cannot reach them.

MIXED CONIFERS.

One of the most difficult conditions to deal with, where the growing of a future crop of pine is the end in view, is when the existing forest consists mainly of balsam, spruce and hemlock intermixed with good-sized old pine trees. In such areas it will be found that few seedlings of pine are coming up among these shade enduring trees, unless it may be on high land or where the canopy happens to be thin. The young pine is not so tolerant of shade as the other conifers. Hemlocks, for instances, may be seen growing up in the gloomy shade of their parent trees where a pine seed would not even germinate. The treatment of a forest of this kind will depend entirely upon its locality. If the less valuable conifers can be cut down and marketed without loss, then by all means remove a sufficient quantity of them to insure such opening in the canopy as will admit light enough to permit the growth of the young pine. If on the other hand the ground is covered thickly with young trees of the shade enduring species with little or no pine growing amongst them, then a clean sweep may as well be made, first cutting the mature pine trees with the exception of a sufficient number in well-chosen localities spared for future seeding.

As to whether fire should be used or not in clearing the ground depends on the number of young pine trees coming up. In many districts where pine is being cut and which it is desirable to retain in timber, the spruce, balsam and hemlock cannot be cut so as to repay the outlay. The forester must be guided by the existing conditions in the locality, or allow the question to stand over for future solution, bearing in mind that new factors are likely before long to simplify the problem.

It is very evident, for instance, that if Chicago and other cities on or near the lake frontier, continue to increase in population at the same rate as in recent years, all varieties of timber will greatly increase in value, and the kinds now slighted by the lumberman for want of any profitable market, if growing in territory tributary to the lakes so as to admit of easy transportation will be an increasingly valuable asset.

Though as has been said no two forests are alike, and a great variety of special conditions as to soil, climate and location may create frequent divergencies in the result, yet the evolution of an ordinary pine forest can easily be traced in its broad general outlines. The rocky and broken region of Central Ontario, the same style of country in Wisconsin, and Minnesota, with the gravel ridges and sand flats of Michigan are peculiarly the home of the pine tree. No doubt large quantities grow in New York, Pennsylvania and the North-eastern States, but were found more as persisting among the hardwoods which the soil was better fitted to nourish than as the prevailing forest type. Its adaptability to the districts where it specially flourishes and predominates, is shown by its power to maintain itself and thrive in conditions adverse to other species. While it grows on rich soil and attains its greatest proportions alongside the hardwoods, it will flourish where its roots are only embedded in the fissures of rocks or amongst the disintegrated blocks and debris at the foot of escarpments where hardwoods could only survive as stunted bushes.

FOREST EVOLUTION.

The prominent features in the evolutions of a pine forest can be seen in its various stages in almost any pine district. While a pine-covered tract is overrun by one of the

frequently recurring fires to which all coniferous forests are liable, it will usually be found that here and there a tree or a small group of trees has been spared by some favoring circumstance.

What then takes place is that the ground is first seeded by poplar and white birch, trees which are very widely distributed and each year shed immense quantities of seed well adapted by their structure for being carried long distances by the wind. The seedlings of these varieties spring up immediately and during their earlier years grow rapidly, covering the burned over ground. Conifers, on the other hand, do not bear seed every year and are not so prolific.

White pine, so far as has been observed, seeds irregularly perhaps every third or fourth year, so that as a rule the deciduous trees, which have seeded first hold possession, get a good start and commence to shade the soil, making an ideal condition for the growth of young pine. When a seed year for pine comes round then those trees left in in the district will distribute their seed and seedling pines begin to make their appearance among the varieties already growing. Finding the requisite amount of light and shade amongst the poplars they grow up under these favorable circumstances as forest trees, shedding their lower branches as they grow older owing to the close neighborhood of the other trees and shooting upward rapidly.

It is a matter of common observance that pine growing up without shade progresses more slowly as the main strength of the tree is put forth in developing the branches which expand at the expense of the stem. The restriction of space in the forest, however, promotes the upward growth as the trees struggle towards the light. If a sufficient number of parent trees have been left to cover the ground fairly with a young growth, then commences a conflict for existence between the rival occupants of the soil. It will be generally found that in say from twenty to thirty years after the new growth began the tallest pine and poplar are about equal in height, but after this period the struggle is very uneven.

The pine will so completely overmaster the poplar that in about thirty years more hardly a poplar or a birch will be left alive, except it may be where pine has not seeded or some other variety is disputing possession. Of course the process indicated is liable to be modified or reversed by conditions in which other varieties of forest vegetation are introduced, especially in wet or swampy places, which will be occupied by the trees best fitted for such surroundings. When a forest of pine once fairly covers the ground its life may with care and attention be continued indefinitely, adding yearly by its growth to the wealth of the country besides exercising other valuable functions in the economy of nature.

RATE OF GROWTH.

The rate of growth of pine trees is a question of great interest to all concerned in silviculture, and as has been pointed out the answer depends greatly upon varying local and individual considerations. As a general rule however, any lumberman can testify that having cut the merchantable trees in a pine forest leaving the smaller growth, he can, if fire is kept out, go back in twenty years and take another crop, not so large it may be as the first, yet sufficient to pay him handsomely for the operation.

The rate of growth of any given tree can easily be determined by counting the rings denoting the annual increase, the history of the life of the tree being thus written on the cross section.

The question of how far pine seed will distribute itself is more difficult of solution. After many observations conducted in different districts we are still unable to say how far a pine seed may be carried. Obviously it depends on the position of the tree and the strength of the wind. If the parent tree stands in a hollow or even on level ground surrounded by other trees it cannot fly very far, but if situated on a ridge or mountain—a situation much affected by pine trees—the seed could be carried a long distance. The structure of the seed is peculiarly fitted for this, as the kernel is light and attached to a broad sail of thin texture. When the cones open in the fall of the year on a tree high up on a hillside, and the seeds become detached from the cone, which is most likely to occur in a violent windstorm, they may be whirled a great distance. It is only on this assumption that the appearance of young trees springing up a mile or two from where any parent

tree may be seen can be accounted for. This will apply to all conifers though more frequently noticeable as regards pine, as the latter are more generally found occupying high and sterile ground, where they can maintain themselves better than the other varieties.

Reference has been made to the effects of fire as regards re-forestation. When a district has been burned over once the utmost care should be taken to prevent another visitation. The deliberate or careless setting of fire in a forest should be a criminal offence. A second fire occurring soon after a first is very detrimental to the soil, besides killing off such young trees as may have appeared in the meantime. And if fire sweeps the same locality again and again, as in that part of the township of Burleigh visited by the Commission in 1897, it will leave nothing but a howling wilderness, a veritable barren land that will require generations to recover any degree of fertility.

While precautions are being wisely taken by the Government of Ontario, through their fire ranging system, to prevent forest fires, it by no means follows that fire should never be used. As has already been shown, fire is, under certain circumstances, the best and cheapest agency that can be used in preparing the ground for another forest crop. The soil is often so thickly covered with moss, needles, leaves, old trees and dead branches, in addition to the debris left by the lumbermen, that it is difficult for seed to come in contact with the ground.

SUMMARY OF CONCLUSIONS.

Some recommendations and suggestions for future forestry methods were contained in the Preliminary Report of the Commission issued in 1898. From these and the various suggestions contained in the preceding portion of this report, your Commissioners make the following summary of suggestions :

1. A large portion of the Central Division of the Province is more profitable from the standpoint of public revenue as forest land than under cultivation for farm crops, and as in addition to this it contains the head waters of all our principal streams, all that part of this Division found upon examination to be not well adapted for farming should be added to the permanent Crown Forest Reserves.

2. All licensed and unlicensed lands held by the Crown where tourists, lumbermen or prospectors are permitted should be patrolled by fire rangers, and these rangers should be controlled directly by the Government.

3. Suitable regulations should be enforced to prevent too rapid or too close cutting upon lands under license.

4. No license in arrears for ground rent should be renewed, but the territory if not suitable for agriculture should be added to the Forest Reserves.

5. Fire notices in the English, French and Indian languages should be posted along the canoe routes throughout the territory north of the Height of Land.

6. License holders should not be allowed to cut any trees for logs smaller than will measure twelve inches across the stump two feet from the ground, except by special permission from the Department of Crown Lands and under the supervision of the district forest ranger.

All of which is respectfully submitted,

Commissioners.

E. W. RATHBUN, Chairman.
ALEXANDER KIRKWOOD,
JOHN BERTRAM,
J. B. McWILLIAMS,
THOS. SOUTHWORTH, Secretary.

FORESTS AND RAINFALL.

BY M. J. BUTLER, C.E., O.L.S.

The Province of Ontario embraces an area of 222,000 square miles, 142,080,000 acres. The area under actual cultivation as farming land is very approximately 8,960,000 acres, though there are about 23,000,000 acres sufficiently settled so as to be under organized municipal government. The southerly and south-westerly boundaries consist of the River St. Lawrence, Lake Ontario, the Niagara River, Lake Erie, the Detroit River, Lake St. Clair, the St. Clair River, Lake Huron, the Sault Ste. Marie River and Lake Superior. The international boundary follows the centre line of the various lakes and rivers, intersecting the northerly shore line of Lake Superior at or near the mouth of the Pigeon River, on the 48th parallel of north latitude, from this point westerly it follows the Pigeon River, a chain of lakes and rivers into the Rainy Lake and River, etc., on to the north-west angle of the Lake of the Woods. From this point the boundaries are distinctly set forth by 23 Vic. chap. 21, as follows: Thence along a line drawn due north until it strikes the middle line of the course of the river discharging the waters of the lake called Lac Seul, or the Lonely Lake, whether above or below its confluence with the streams flowing from the Lake of the Woods, towards Lake Winnipeg; and thence proceeding eastward from the point at which the before mentioned line strikes the middle line of the course of the same river (whether called by the name of the English River, or as to the part below the confluence by the name of the River Winnipeg) up to Lac Seul or the Lonely Lake; and thence along the middle line of Lac Seul or Lonely Lake to the head of that lake; and thence by a straight line to the nearest point of the middle line of the water of Lake St. Joseph; and thence along that middle line until it reaches the foot or outlet of that lake; and thence along the middle line of the river by which the waters of Lake St. Joseph discharge themselves to the shore of the part of Hudson's Bay commonly known as James' Bay; and thence south-easterly following upon the said shore to a point where a line drawn due north from the head of Lake Temiscamingue would strike it; and thence due south along said line to the head of said lake; and thence through the middle channel of the said lake into the Ottawa River; and thence descending along the middle of the channel of the said river to the intersections by the prolongation of the western limits of the Seigneuries of Rigaud, such midchannel being as indicated on a map of the Ottawa Ship Canal Survey, made by Walter Shanly, O.E., and approved by order of the Governor-General in Council dated the 21st July, 1886; and thence southerly following said westerly boundary of Seignury of Rigaud to the south-west angle of the said Seignury; and thence southerly along the western boundary of the augmentation of the Township of Newton to the north-west angle of the Seignory of Longueuil; and thence south-easterly along the south-western boundary of the said Seignory of New Longueuil to a stone boundary on the north bank of Lake St. Frances at the cave west of Point au Baudet, such line from the Ottawa River to Lake St. Frances being as indicated on a plan of the line of boundary between Upper and Lower Canada, made in accordance with the Act 23 Vic. chap. 21, and approved by order of the Governor General in Council, dated 16th of March, 1861. Report Minister of Public Works, 1890.

It admits of a sub-division into seven natural areas, more or less distinct in their physical, geological and topographical features.

1. THE LOWER OTTAWA DISTRICT.

This district is essentially an agricultural area, occupying the country lying between the Ottawa and St. Lawrence Rivers as far west as a line drawn roughly between Brockville and Perth and a point on the Ottawa River lying a little to the north of the mouth of the Madawaska River. It presents a generally level surface; the height above the sea at the confluence of the Ottawa and St. Lawrence Rivers is about sixty feet, and at the Chaudiere Falls on the Ottawa near the City of Ottawa about 118 feet. From those levels the district rises near its north-west boundary to about 400 feet above the sea. The average elevation may be placed at from 200 to 300 feet above the level of the sea.

There are large areas of swamp, capable of being readily drained as a rule. On the whole it is an area of good fertility.

The Rideau Canal passes through the central portion, a large part of its more southern and eastern area is drained by the South Nation River, which rises near the St. Lawrence River in Edwardsburgh Township, flowing north-easterly into the Ottawa in Plantagenet Township.

The strata of this district are essentially lower silurian overlaid with drift deposits and other more modern superficial accumulation.

2. THE GANANOQUE AND NORTHERN TOWNSHIPS DISTRICT.

This section, lying immediately west of that just described is of a very different character. It forms a narrow belt of more or less broken and rocky land, extending along the St. Lawrence River between Brockville and Kingston, but in its northern and north-western extension it widens and covers a large area. In its southern prolongation, it crosses the St. Lawrence River into the State of New York and forms the wild region of the Adirondacks. North of the St. Lawrence River it extends over Leeds and Renfrew and embraces the Northern Townships of Frontenac, Addington, Hastings, Peterborough, Victoria and Simcoe counties, its southern boundary striking the Georgian Bay near the mouth of the Severn River. From this point it forms the shores of the Georgian Bay to beyond Killarney. Its north-western boundary is to some extent a merely conventional line running from the latter point to near the head of Lake Temiscamingue.

The average elevation of the district is about 700 feet above the level of the sea. Lake Nipissing, its largest body of water, lies at an elevation of 665 feet above the sea, but the ground to the north and south of the lake is considerably higher. The maximum elevation is probably 1,000 to 1,100 feet above the sea level.

This district is essentially a rugged country of crystalline rocks, high ridges, and hills, and deep swamps and valleys. The soil where found is rich and productive, and in places large areas of fertile land are found. It is a land of lakes, rivers and streams. Nearly all the rivers which drain the rich and fertile portions of the older Ontario here find their source. It contains within its limits immense areas of valuable timber, pine, hemlock, spruce and the deciduous trees, oak, maple, birch, beech, elm and ash.

2. The general direction of the river valleys is that of south-west. The principal rivers which have their source within the above area are: The Gananoque, which flows into the St. Lawrence, and which furnishes power to drive all the factories in the thriving town of Gananoque; the Napanee River which flows into the Bay of Quinte near Deseronto, the various falls on which are utilized by mills and thriving industries as at Yarker, Thompsonville, Newburgh, Napanee Mills and Napanee. From Napanee to Deseronto the river is navigable for steamers drawing eight feet of water. The Salmon River, which falls into the Bay of Quinte at Shannonville; the Moira which discharges into the Bay of Quinte at Belleville; the Trent River and its tributaries, the largest river within the area, and which is now being canalized for a six and one-half feet navigation. An immense quantity of water power will be available along the Trent as soon as access can be had to it, a portion of which only is now utilized at Trenton, Campbellford, Hastings, Peterboro and Lakefield. Flowing easterly into the Ottawa River are the Mississippi, Madawaska, Bonnechere, Pettewawa, Mattawan, Joeko, Metabechevan, Montreal and the Blanche. Flowing westerly into the Georgian Bay are the Severn, which drains the Lake Simcoe basin, Moon or Muskoka which drains the large area of Muskoka Lake, Seguin, Shawanagan, Magnetewan, and the French. An almost innumerable number of minor streams are to be found, and lakes of greater or less extent abound throughout the entire area.

It is of the highest importance for the well being of a large section of Ontario, that the forest belts within this section be carefully guarded. The agricultural, manufacturing and other interests are of great value and extent. The continual success of these to a greater or less degree depends upon the maintenance of cheap power for manufacturing, and this means water power. The elevation and magnitude of the water shed insures a great body of water at a good elevation, a prime requisite, and a continuous forest is a well-known conservator of water, thus insuring a reasonably even run-off. Within

the limits of this district lies Algonquin Park, a forest and game preserve; the beautiful district of Muskoka, the tourists Paradise, aptly characterized as the Highlands of Ontario, and the wonderful Lake Temagami.

3. THE LAKE ONTARIO SECTION.

In this district we come again upon a rich agricultural area, underlaid by limestone, shales and other sedimentary rocks. It ranges along the shore of Lake Ontario. Its eastern and northern limits are bounded by the crystalline region embraced in district No. 2. Its western boundary is the high escarpment which runs from the Niagara River near Queenston, at first in a westerly direction to the north of Hamilton, then northward and northwesterly to the Georgian Bay by Dundas, Georgetown, Bellefontaine, and Orangeville to the north part of Nottawasaga, and from thence northwesterly by the Blue Mountains, etc., to Cabot's Head on the Georgian Bay. From the latter point eastward the district forms the shore of the Georgian Bay to near the mouth of the Severn River. It thus includes portions of the Counties of Frontenac, Addington, Hastings, Peterborough, Victoria, Simcoe, Peel, Halton, Wentworth and Lincoln, with the whole of York, Ontario, Durham, Northumberland, Prince Edward and Lennox.

Numerous lakes, of which Lake Simcoe is the largest, lie within this district, and especially along its northern edge. The Trent, which rises in the Laurentian country of the north, and flows through a series of lakes into the Bay of Quinte, leading to Lake Ontario, is its most important river. Other streams which flow into the Bay of Quinte are the Napanee River, Salmon River, Moira River.

Into Lake Ontario direct are the Humber River and the Credit River, besides a number of smaller creeks.

In its surface features the district presents but few marked inequalities of land. The ground rises gradually from Lake Ontario (245.38 ft. above the level of the sea) to a series of ridges and table lands running in a generally east and west direction. These ridges are composed of drift materials, gravel, boulders and clay. The highest elevations are about 1,000 feet above the sea level. The highest region, in Albion and King Townships has an elevation of about 1,000 feet above the sea level, but becomes gradually lower to the east. Near the village of Stirling, in Hastings County, it averages about 750 feet above the sea level, Lake Simcoe to the north is 719 feet above the sea, and Balsam Lake, the northern part of which lies in the crystalline boundary, has an elevation of 839 feet above the sea. Stoney Lake lies at an elevation of 771 feet above the sea, Belmont and Rice Lakes are approximately 600 feet above the sea level. Scugog Lake, in the midst of the drift ridges, lies at an elevation of 800 feet above the sea. The strata of the district consist essentially of lower Silurian formation overlaid by glacial and post-glacial deposits. Within the district the extent of forest is limited to that left by the farmers, sufficient in most cases to supply fuel and fencing material.

4. ERIE AND HURON DISTRICT.

This section of country occupied throughout by comparatively undisturbed limestones and other Silurian and Devonian strata, with overlying drift clays, sands, and more recent superficial surface deposits, is essentially a rich agricultural area. It lies immediately west of the Lake Ontario district. On the south the district is bounded by Lake Erie, on the west by Lake Huron. The greater portion of its area is an elevated tableland from 1,000 to 1,400 feet above the level of the sea. Along its northern edge the ground rises in places to an elevation of 1,600 feet above the sea, but it slopes gradually to the level of Lake Erie on the south (371.50 feet above the level of the sea) and towards Lake Huron on the west (580.2 feet above the sea level). Its surface, except where cut by river valleys, is remarkably even and presents a marked contrast to the rest of Ontario, in the absence of lakes.

It is traversed, however, by many important rivers, and especially by the Grand river, falling into Lake Erie, the Thames into Lake St. Clair, the Maitland and Saugeen into Lake Huron. The eastern and northern escarpment is also cut through by numerous small streams. Speaking generally, the watersheds of the rivers and creeks of the dis-

trict may be said to be cultivated lands, the proportion of forest being rather lower than in any of the settled regions of the Province. Hence we here see the effects of such forest denudation in violent floods in the rivers.

The strata of the district consist, in its more eastern portions, of middle and upper Silurian representations, with various Devonian formations in the western end. The deep deposits of drift material, as evidenced along the valley of the Grand River, are peculiarly subject to erosion, hence the river carries in flood time an immense quantity of sand, gravel and boulders, wearing the banks and filling up the flats.

In the western peninsula is found the natural gas and oil formations. Near Niagara and along the shore of Lake Erie the celebrated peach and grape growing regions lie, the quality and flavor of the fruit of the vicinity being unsurpassed.

5. THE MANITOULIN AND OTHER ISLANDS.

This section is in its geographical and topographical features very similar to the Lake Erie and Huron sections.

The eastern end of the Grand Manitoulin Island is Laurentian rock; the middle and western the higher limestone of the Niagara, showing beautiful fossils of the coral and like ages. The northerly shore line is a bold high escarpment, shelving off to the level of the lake at the south. The island is well timbered and the soil is fertile.

6. THE DISTRICT OF THE UPPER LAKES.

This region may be described in general terms as extending over the entire north-western portion of Ontario, extending along the north shores of Lake Huron and Superior and the international boundary as far west as the western boundary of the Province. On the east it is bounded by a conventional line extending from a point just west of Killarney to a point near the head of Lake Temiscamingue, on the north by a more or less irregular line which follows the height of land from near Lake Temiscamingue to Lac Seul on the northwesterly boundary of the Province.

It forms for the greater part a densely wooded but rugged and mountainous region, broken by numerous bodies of water and underlaid throughout by crystalline rocks of the Laurentian and Huronian series. Over the floor of the crystalline rocks by which the vast region is underlaid, drift clays, sands, gravel and boulders, and post glacial sands and clays, and other more recent accumulations are spread in many localities.

Although the country is newly opened for settlement, yet in places there are large areas of valuable farming land. Along the Sault branch of the Canadian Pacific Railway, in the vicinity of Thessalon and other points, there are thriving and prosperous farms which rival the older Ontario. Again in the valley of the Rainy River is an extensive tract of rich and fertile soil, and considerable areas of good land are found south-west of Thunder Bay and along the line of the C. P. R. between Port Arthur and Rat Portage. It is, however, a forest region and embraces the southerly slope of the watershed of the upper lakes within its limits. Here is the natural region for extensive forest reserves.

The surface of Lake Huron is 580.2 feet above the level of the sea, and that of Lake Superior 600.48 feet above sea level. From these levels the ground rises more or less abruptly to an average height of 1000 to 1500 feet above the sea level, with points or considerably greater elevation.

The height of land, which, roughly speaking, forms its northerly boundary although shown as a ridge on the maps, is by no means anything of the kind. It is rather a plateau, the rugged hills rather lie on the slopes approaching the summit. Almost innumerable lakes abound throughout the section.

The rivers are large and important streams, the most notable of which are, the Spanish River, the Missisagua, the Michipicoten, the Magpie, the White, the Nepigon, and the Kaministiquia. Lake Nepigon is the largest lake in the district and lies at an elevation of 852 feet above sea level.

7. THE DISTRICT OF THE JAMES BAY BASIN.

This extensive area, lying north of the height of land which separates the waters of the St. Lawrence basin from those of the Hudson's Bay, extends from the eastern boundary of the Province to the western, and is to a considerable extent, a terra incognita. The officers of the Geological Survey of Canada have, it is true, traversed the main rivers and examined a narrow fringe along them, and a line has been run by the Crown Lands Department of Ontario from the shores of Lake Nipissing to those of James Bay approximately on the 81st parallel of longitude.

The Department of Crown Lands through its officers has accumulated a good deal of information, such as was possible to get along the main rivers traversed by the Indians and Hudson Bay voyagers. Yet after all that has been done we have but a very slight knowledge of this enormous extent of country. The southerly edge of the basin lies at an elevation of approximately 1500 feet above sea level and gradually falls to the sea level at James Bay.

The entire area is in forest, and no land is under cultivation within its limits. Recent reports by Niven, Ontario Land Surveyor, show a belt of approximately level clay land 130 miles in width, on the middle of the slope, and the report of P.L.S. O'Sullivan of Quebec shows an extensive tract of level clay land corresponding in locality in the Province of Quebec. It is therefore reasonable to assume that a tract of good arable clay land lies on this northerly slope some 60 or 70 miles south of James Bay and extending east and west for a considerable distance.

Within the bounds of this area lie immense spruce forests, the white and red pine are also found to a greater or less extent for a short distance north of the height of land.

Near James Bay an extensive muskeg seems to mark the land as practically worthless, but further exploration may show that the area of muskeg has been over estimated.

It is a land of large lakes and many of them. The rivers are numerous and important, and at this time furnish the only means of access.

The map which accompanies this description will assist to a clear understanding of the various sections of the Province.

RAINFALL.

In seeking to study the influence of forests on rainfall and run off, the latter of which is really the more important, it is obvious that the scope of our inquiry is beyond that of any previous observers. The studies hitherto made in Germany, France and other countries, have been on a laboratory scale, in comparison with the almost continental spread we have under consideration.

The seemingly discordant and unsatisfying results, as to the influence of forests on precipitation, hitherto published as the results of scientific investigation in Europe seem to be based on data too brief, minute and altogether inadequate, to warrant the somewhat sweeping generalizations found in the reports.

In order to make clear the basis of what follows, it seems desirable that a brief outline of a few elementary meteorological laws be given as a premise :

"Whatever tends to lower the temperature of the air below the dew point is a cause of rain."

(Ency. Britannia, Vol. XVI., page 150, et seq.)

The mixture of a vapour with a gas follows the two laws below :

1. "The weight of vapour which will enter a given space is the same whether the space be empty or filled with gas, provided plenty of time be allowed."

2. "When a gas is saturated with vapour, the actual tension of the mixture is the sum of the tension due to the gas and vapour separately, that is to say it is equal to the pressure which the gas would exert if it alone occupied the whole space plus the maximum tension of vapour for the temperature of the mixture."

"If a vapour at saturation be subjected to a fall of temperature, while its volume remains unchanged a portion of it must be liquified, corresponding to the difference between the density of saturation at the higher and at the lower temperature. There are two means of liquifying a vapour, increase of pressure and lowering of the tempera-

ture. Since clouds are merely condensed vapour, their formation is regulated by the causes which tend to convert vapour into liquid. Such liquefaction implies the presence of a quantity of vapour greater than that which, at the actual temperature would be sufficient for saturation, a condition of things which may be brought about by the cooling of a mass of moist air in any of the following ways :

“(a) By radiation from the mass of air of cold sky ; (b) By the neighborhood of cold ground, for example, mountain tops and in a less degree a large forest area ; (c) By the cooling effect of expansion when the mass of air ascends into regions of diminished pressure. This cooling of the ascending mass is accompanied by a corresponding warming of the air which descends, it may be in some distant locality, to supply its place. Causes (b) and (c) combine to produce the excessive rainfalls which generally characterize mountainous districts. It is believed that water spouts are produced by the rapid ascent of a stream of air up the axis of an aerial vortex.

“(d) By the contact and mixture of cooler air. It is obvious, however, that this cooler air must itself be warmed by the process, and as both the temperatures and vapour density of the mixture will be intermediate between these two components it does not obviously follow (as is too often hastily assumed) that such contact tends to produce precipitation. Such is, however, the fact, and it depends upon the principle that the density of saturation increases faster than the temperature.”

DEW.

Dew is caused by the temperature of the ground sinking below that of the air. The surface of the earth as it gradually cools lowers the temperature of the adjacent air which thus becomes saturated and a further cooling yields up a portion of its vapour in the liquid form. A gentle breeze is favorable to the deposition of dew. The earth frequently sinks from 8 to 10 degrees F. below the temperature of the air, at which times dew falls.

BAROMETER.

Generally speaking, the wind blows from regions of high to regions of low barometer and with greater force as the barometric gradient is steeper. The march of the barometer is in general opposite to that of the thermometer, that is to say, the barometer usually falls when the thermometer rises, and vice versa. This law is one of the most general in meteorology and is easily explained; in fact, when the temperature rises at any place, it produces a dilation of the air, and consequently an overflow into neighboring regions, the weight of air over the place is thus diminished. On the contrary a fall of temperature produces an inflow of air and an increase of pressure. Mean barometric height should be lower during warm and rainy winds than during cold and dry winds.

A study of the map of North America in its relation to the Province of Ontario discloses to the south, southwest, and west, the vast prairie regions extending across the States of Ohio, Missouri, Kansas, Nebraska, Iowa, Illinois, and parts of Wisconsin and Minnesota. The prevailing winds are from the southwest, west, and northwest. The rain giving wind is generally one from the southwest and the reason for it seems obvious ; the gentle breeze of the far south, moving northerly over the highly heated area of the great prairie, is highly expanded until when it meets the basin of the great lakes it is in a fit condition to take up an enormous quantity of aqueous vapour and undoubtedly does so, to the point of saturation. As it moves on northerly it comes into contact with the wooded elevations which constitute the height of land where, owing to the increased elevation of the land and the cooling effect of the large forest area, it necessarily parts with an immense quantity of its vapour in the form of rain. The prairie States constitute the furnace, the great lakes the evaporating pans, and the high, wooded slopes of the height of land the condensers.

Denude the height of land of its forest covering and beyond doubt the cooling and condensing effect would be lost, the highly heated rocks which would then ensue would but add to the capacity of the air by still further expanding it. The marshes and lakes which form so prominent a feature of the section would dry up or tend to do so, and the height of land would cease to be the barrier it is now, and the moisture-laden air would

drift into the basin of the Hudson Bay. That this is what would reasonably take place is evidenced by the heavy rainfall of the bad lands lying to the northwest of the Hudson Bay, where the above described condition of affairs in a large measure now exists.

The main causes that produce rain are cosmic, and local conditions are to a certain degree of minor importance. Nevertheless it can hardly be doubted that a forest of large area does lower the temperature. In so far as it performs this function, it is a cause of rain, and as, in addition, in Ontario, the great forest belt is also on higher elevation it becomes of more importance.

The effect of deforestation on mean run-off of rivers is beyond question; a watershed stripped of its forest belt is one where the river valley is every spring subjected to violent floods. With the forest cover, its mosses, roots, fallen leaves, branches and tree trunks, the rain and snow are mechanically held back, dammed up as it were. The evaporation is lessened, the protection from the sun's rays offered by the foliage causes the snow and ice to melt slowly, the mosses, roots, etc., do not allow the water to freely escape, hence it reaches the main river in small streamlets. Whereas, in the case of a deforested belt, the snow and ice are rapidly melted, and the water runs off in torrents. It may be stated without a doubt that the beds of all rivers are fitted to carry off the mean flow without injury to its banks or the adjacent valley.

The evil effects of the deforestation in this Province has so far been felt only in the western end of the cultivated region as described under the fourth division of the general description of the Province. The Grand River and the Thames have one or two violent floods each year, one usually early in January, and the second at the breaking up of the ice in the spring. It is reasonable to suppose that the floods will increase in violence, not only on these rivers but on all others where like conditions are working themselves into existence. A large expenditure of money will be required to mitigate the damage being done: already the cities of Brantford and London have suffered and the former city has gone to a great expense to endeavor to protect its citizens from the destroying fury of the Grand River. The character of the vegetation on the watershed exerts a considerable influence on the ultimate distribution of the rainfall. In the following table, abstracted from a paper by D. W. Mead on the Hydro Geology of the Mississippi Valley, published in the Journal of the Associated Engineering Societies, Vol. XIII, will be seen the relative quantity of water required by different crops.

Grain.	Mean number of lbs. of water required per lb. of dry grain.	Computed yield of dry grain per acre.	Water required Per Acre.	
			Tons.	Inches.
Barley	401.74	Pounds. 7,441	1494.7	13.2
Oats	501.47	8,861	2221.7	19.6
Corn	301.5	19,845	2991.5	26.4

The daily consumption of water by the different crops :

Kind.	Inches of water.	
	Minimum.	Maximum.
Lucerne grass	0.134	0.267
Meadow grass	0.122	0.287
Oats	0.142	0.193
Indian corn	0.110	1.57
Clover	0.140	
Vineyard	0.035	0.031
Wheat	0.106	0.110
Rye	0.091	
Potatoes	0.038	0.055
Oak trees	0.030	0.038
Fir trees	0.020	0.043

Mr. Tweedle, a well-known authority, finds that this table agrees with careful experiments made in France and elsewhere, and calculates from it, that from seed time to harvest, cereals will take up fifteen inches of water and grass may absorb as much as thirty-seven inches.

This table shows also one of the important reasons why a decrease of stream flow follows the destruction of forests, and their replacement by meadows and cultivated fields. It is quite evident also that if the watershed were covered with grasses and cereals, there would be comparatively little water left for the flow of streams.

Ontario shares with the United States the basin of the great lakes. The areas of the water surface and of the watershed are as set forth in the following table:—

Name of reservoir.	Area of water surface in square miles.	Area of watershed in square miles.
Lake Superior.....	31,800	48,300
Lakes Michigan and Huron.....	45,000	97,800
Lake St. Clair.....	495	5,100
Lake Erie.....	10,000	25,700
Lake Ontario.....	7,450	25,530

The above information is derived from a paper by Captain Hiram M. Chittenden, Corps of Engineers U. S. Army, Transactions of the American Society of Civil Engineers Vol. XL, page 369, et seq.

Lake Michigan lies wholly within the boundaries of the United States, yet has its interest and influence for us as the discharge must be through the Niagara River, the mean discharge of which in second feet is 232,800, the area of the watersheds tributary being 265,095 square miles.

With the increased development of the country and the improvement in long-distance transmission of electric energy, every water power in the Province has a potential value. It therefore becomes a problem of surpassing moment how best to conserve the waterfall. There are but two methods available, the construction of reservoir dams, and the preservation of the forest on the watershed. A forest suitable and beneficial as a conservator of water supply may, or may not, be valuable as a source of timber supply. An Engineer before being able to reach a conclusion as to the value of a water power project, must familiarize himself with the catchment area of the river, he must study its topography, meteorology and geology, the minimum flow of a river in its critical stage, and the durations of the period of such minimum flow.

The mean daily flow which may be relied upon is the desideratum to calculate the value of a proposed power development scheme. For such purposes there is only one safe course and that is to make a thorough topographical survey of the catchment area.

All of which goes to show the necessity for a geodetic and topographical survey of the country, the want of which is already seriously felt, and which will from this on be more and more a necessity. A topographical map such as is now being prepared of the United States, and which is partially completed consists of an exact reproduction of the natural features and of the public culture of the regions surveyed. They are mapped with minute accuracy, shew dwelling houses, roads, railways, political boundaries, and all features comprising surface relief, as hills and valleys, lakes and rivers, swamps, marshes, cultivated fields, woodlands, etc., and all in exact conformity to the true surface position, as well as the relative elevations above the sea level.

From a map so constructed, one in which the distance between two points can be measured with accuracy and one on which all the elevations are accurately shown, it is possible for the student of hydrography, to at once determine the relations which exist between various catchment areas, and a reasonably clear and accurate project may be evolved.

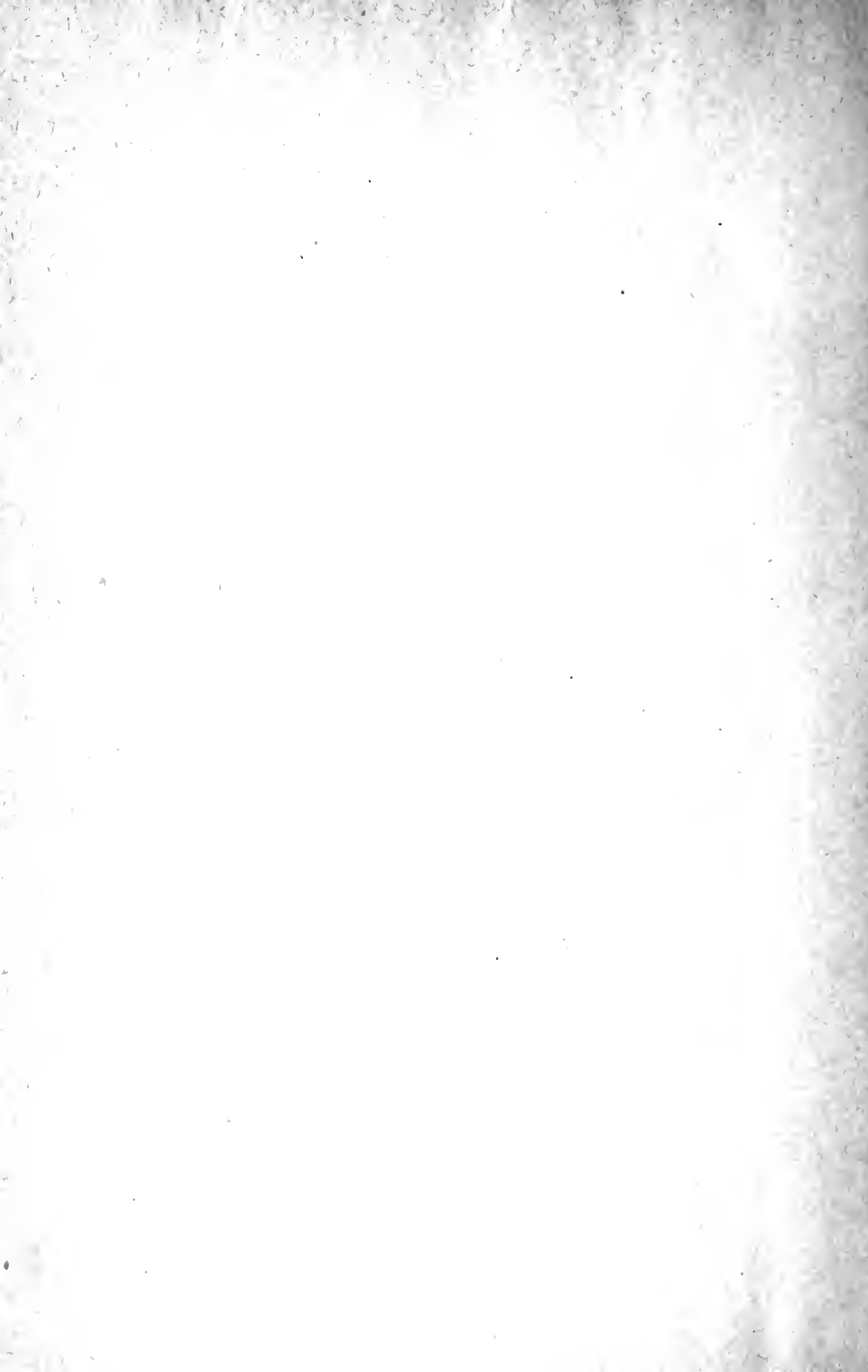
Ontario is rich enough to carry on such a survey at once, and is singularly behind the rest of the world in this particular. India, Australia, all the countries of Europe,

and the United States, as well as a number of the South American countries have accurate geodetic maps, and in nearly every country topographical maps are either completed or are in the process of completion. The want of such information as such maps only can supply will be seriously felt more and more with the increasing opening up and development of the country.

Free use has been taken of all the available data in preparing this paper. More particularly the maps and reports issued from time to time by the Department of Crown Lands of Ontario, the maps and reports of the Geological Survey of Canada, the maps and reports of the Geographical Society of Quebec.

Prof. Chapman's Minerals and Geology of Canada has been followed in the general description of the topographical features, other sources of information have been acknowledged in the text.





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