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Various pagings.

In Sessional paper No. 7B, pages 18 & 19 are incorrectly numbered pages 17 and 18.

In Sessional paper No. 8, page iv is incorrectly numbered page v.

In Sessional paper No. 8A, pages 131, 278, 337-339 are incorrectly numbered pages 113, 279, 327-329.

SESSIONAL PAPERS

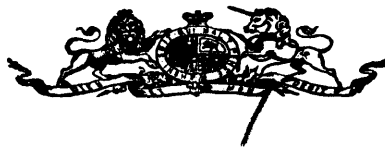
VOLUME 5

FIFTH SESSION OF THE SEVENTH PARLIAMENT

OF THE

DOMINION OF CANADA

SESSION 1895



891025

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OF THE
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FIFTH SESSION, SEVENTH PARLIAMENT, 1895.

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Census of Canada, 1890-91. Fourth Volume.....*Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 1.

1. Report of the Auditor General on Appropriation Accounts, for the year ended 30th June, 1894. Presented 29th April, 1895, by Hon. G. E. Foster...*Printed for both distribution and sessional papers.*
- 1a. Return of Treasury Board Overrulings on appeals from the decision of the Auditor General, between the sessions of 1894 and 1895. Presented 22nd April, 1895, by Hon. G. E. Foster.
Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 2.

2. Public Accounts of Canada for the fiscal year ended 30th June, 1894. Presented 23rd April, 1895, by Hon. G. E. Foster. 2a. Estimates for the fiscal year ending 30th June, 1896; presented 29th April, 1895. 2b. Supplementary Estimates for the year ending 30th June, 1895; presented 21st May, 1895. 2c. Supplementary Estimates for the year ending 30th June, 1896; presented 12th July, 1895.....*Printed for both distribution and sessional papers.*
3. Lists of Shareholders in the Chartered Banks of Canada, as on the 31st December, 1894.
Printed for both distribution and sessional papers.
- 3a. Report of dividends remaining unpaid and unclaimed balances in the chartered banks of Canada for five years and upwards, prior to 31st December, 1894. Presented 4th July, 1895, by Hon. G. E. Foster.....*Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 3.

4. Report of the Superintendent of Insurance for the year ending 31st December, 1894.
Printed for both distribution and sessional papers.
- 4a. Preliminary statements of the business of Life Insurance Companies in Canada for the year ended 31st December, 1894. Presented 20th June, 1895, by Hon. G. E. Foster.
Printed for both distribution and sessional papers.
- 4b. Abstract of Statements of Insurance Companies in Canada, for the year ending 31st December, 1894. Presented 30th May, 1895, by Hon. G. E. Foster...*Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 4.

5. Report of the Department of Trade and Commerce, for the year ended 30th June, 1894. Presented 8th July, 1895, by Hon. G. E. Foster *Printed for both distribution and sessional papers.*
6. Tables of the Trade and Navigation of Canada for the fiscal year ended 30th June, 1894. Presented 22nd April, 1895, by Hon. N. C. Wallace. *Printed for both distribution and sessional papers.*

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7. Inland Revenues of Canada. Excise, etc., for the fiscal year ended 30th June, 1894. Presented 23rd April, 1895, by Hon. J. F. Wood. *Printed for both distribution and sessional papers.*
- 7a. Inland Revenues of Canada. Inspection of Weights and Measures and Gas, for the fiscal year ended 30th June, 1894. Presented 23rd April, 1895, by Hon. J. F. Wood. *Printed for both distribution and sessional papers.*
- 7b. Inland Revenues of Canada. Adulteration of Food, 1894. *Printed for both distribution and sessional papers.*
8. Report of the Minister of Agriculture for the calendar year 1894. Presented 25th April, 1895, by Hon. W. H. Montague. *Printed for both distribution and sessional papers.*
- 8a. Report on the Forest Wealth of Canada. Presented 25th April, 1895, by Hon. W. H. Montague. *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 6.

- 8b. Report on Canadian Archives, 1894. *Printed for both distribution and sessional papers.*
- 8c. Report of the Director and Officers of the Experimental Farms for the year 1894. Presented 4th June, 1895, by Hon. W. H. Montague. *Printed for both distribution and sessional papers.*
- 8d. Mechanical and Manufacturing Industries of Canada, by groups. Special report of the Census Returns. Presented 20th June, 1895, by Hon. G. E. Foster. *Printed for both distribution and sessional papers.*
- 8e. Papers referred to the Minister of Agriculture on the subject of the scheduling of Canadian cattle by the Board of Agriculture. Presented 25th April, 1895, by Hon. W. H. Montague. *Printed for both distribution and sessional papers.*
- 8f. Criminal Statistics for the year 1894. *Printed for both distribution and sessional papers.*
- 8h (1894). Spécial report on the production of and markets for Butter and Cheese. Presented 25th April, 1895, by Hon. W. H. Montague. *Printed in Vol. 7, Sessional Papers of 1894.*
- 8i. (1894). Special report on Poultry and Eggs. Presented 25th April, 1895, by Hon. W. H. Montague. *Printed in Vol. 7, Sessional Papers of 1894.*

CONTENTS OF VOLUME 7.

9. Annual Report of the Minister of Public Works, for the fiscal year ended 30th June, 1895. Presented 30th May, 1895, by Hon. J. A. Ouimet. *Printed for both distribution and sessional papers.*
10. Annual Report of the Minister of Railways and Canals for the past fiscal year, from the 1st July, 1893, to the 30th June, 1894. Presented 2nd May, 1895, by Hon. J. G. Haggart. *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 8.

11. Annual Report of the Department of Marine and Fisheries for the fiscal year ended 30th June, 1894—Marine. Presented 9th May, 1895, by Hon. J. Costigan. *Printed for both distribution and sessional papers.*
- 11a. Annual Report of the Department of Marine and Fisheries, 1894—Fisheries. Presented 12th June, 1895, by Hon. J. Costigan. *Printed for both distribution and sessional papers.*

VOLUME 8—*Continued.*

- 11b.** Report of the Commissioner on Cattle Freight Rates from the port of Montreal to ports in Europe.
Printed for both distribution and sessional papers.
- 11c.** Report of the Chairman of the Board of Steamboat Inspection, etc., for calendar year ended 31st December, 1894.*Printed for both distribution and sessional papers.*
- 12.** Report of the Postmaster General, for the year ended 30th June, 1894. Presented 29th May, 1895, by Sir Adolphe Caron.*Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 9.

- 13.** Annual Report of the Department of the Interior, for the year 1894. Presented 15th May, 1895, by Hon. T. M. Daly*Printed for both distribution and sessional papers.*
- 13a.** Summary Report of the Geological Survey Department, for the year 1894. Presented 23rd April, 1895, by Hon. T. M. Daly.*Printed for both distribution and sessional papers.*
- 14.** Annual Report of the Department of Indian Affairs for the year ended 31st December, 1894. Presented 23rd April, 1895, by Hon. T. M. Daly.*Printed for both distribution and sessional papers.*
- 15.** Report of the Commissioner of the North-west Mounted Police Force, 1894. Presented 18th June, 1895, by Hon. G. E. Foster.*Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 10.

- 16.** Report of the Secretary of State of Canada, for the year ended 31st December, 1894. Presented 9th July, 1895, by Hon. W. H. Montague.*Printed for both distribution and sessional papers.*
- 16a.** Civil Service List of Canada, 1894. Presented 24th April, 1895, by Hon. W. H. Montague.
Printed for both distribution and sessional papers.
- 16b.** Report of the Board of Civil Service Examiners, for the year ended 31st December, 1894. Presented 13th June, 1895, by Hon. W. H. Montague.*Printed for both distribution and sessional papers.*
- 16c.** Annual Report of the Department of Public Printing and Stationery of Canada, for the year ending 30th June, 1894, with a partial report for services during six months ending 31st December, 1894. Presented 24th June, 1895, by Hon. W. H. Montague.
Printed for both distribution and sessional papers.
- 17.** Report of the Joint Librarians of Parliament for the year 1894. Presented 18th April, 1895, by the Hon. The Speaker*Printed for sessional papers only.*
- 18.** Report of the Minister of Justice as to the Penitentiaries in Canada, for the year ended 30th June, 1894. Presented 20th May, 1895, by Hon. J. J. Curran.
Printed for both distribution and sessional papers.
- 19.** Report of the Department of Militia and Defence of Canada for the year ended 30th June, 1894. Presented 6th May, 1895, by Hon. A. R. Dickey. *Printed for both distribution and sessional papers.*
- 20.** Judgment of the lords of the judicial committee of the imperial council in the Manitoba Schools Case and the imperial order in council founded thereon, together with the proceedings had before the queen's privy council for Canada, and the remedial order of the governor general in council. Presented 22nd April, 1895, by Hon. G. E. Foster. *Printed for both distribution and sessional papers.*
- 20a.** "The Manitoba School Case, 1894," being a report of the proceedings before the judicial committee of her majesty's privy council, edited for the Canadian government by the appellant's solicitors in London. Presented 21st May, 1895, by Hon. G. E. Foster.
Printed for both distribution and sessional papers.
- 20b.** Return to an address of the House of Commons to his excellency the Governor General, dated 24th April, 1895, for copies of all decisions of the courts of Manitoba, of the supreme court of Canada, and of the judicial committee of the imperial privy council, as to the constitutionality of the Manitoba School Act of 1890, or as to the rights of any minority of the population of Manitoba under the provisions of said act, or in opposition to such provisions. Also copies or

VOLUME 10—*Continued.*

statements as to any legislation by the Manitoba legislature, or action by the Manitoba government relative to the Manitoba school question subsequent to the School Act of 1890, that may at this time be in the knowledge or possession of the privy council of Canada. Also minutes of hearings and proceedings before the privy council of Canada on applications for remedial orders or Dominion interference of any character with the school legislation of Manitoba. Also copies of any orders issued or action taken by the privy council of Canada relative to such legislation; and all other papers or correspondence of an official character having relation to the said Manitoba school question. Presented 29th May, 1895.—*Mr. Charlton.*

Printed for both distribution and sessional papers.

- 20c.** Return to an address of the House of Commons to his excellency the Governor General, dated 26th April, 1895, for: 1. A copy of the appeal of the Roman catholic minority of Manitoba, in reference to the abolition of their schools. 2. A copy of the case submitted to the supreme court of Canada, together with a copy of the decision of the court. 3. A copy of the appeal from the decision of the supreme court to the judicial committee of her majesty's privy council, as well as a copy of the case and of the decision in reference thereto. 4. A copy of all petitions on behalf of the Roman catholic minority of Manitoba, in support of their claim. 5. A copy of the appeal case before the honourable the privy council for Canada. 6. A copy of all orders in council in reference to the same. 7. A copy of the Remedial Order. 8. A copy of all official correspondence in reference to the same. Presented 29th May, 1895.—*Mr. LaRivière.*

Printed for both distribution and sessional papers.

- 20d.** Return to an address of the House of Commons to his excellency the Governor General, dated 26th April, 1895, for: 1. Copies of all petitions praying for the disallowance of the Manitoba Act, 57 Victoria, chap. 28 (1894), intituled: "An Act to amend the Public School Act." 2. Copies of any orders in council in relation to such petitions. Presented 29th May, 1895.—*Mr. Beauvolet.*

Printed for both distribution and sessional papers.

- 20e.** Memorial of the legislative assembly of the province of Manitoba in answer to the Remedial Order of the 21st March, 1895. Presented 11th July, 1895, by Hon. G. E. Foster.

Printed for both distribution and sessional papers.

- 20f.** Return to an address of the Senate to his excellency the Governor General, dated 2nd July, 1895, for a copy of the order in council transmitting to his honour the lieutenant governor of Manitoba, for the information of his government and the legislature of Manitoba, the petition and representations of their lordships the Canadian archbishops and bishops, presented to the Senate during last session, *re* Manitoba school legislation; the answer of the government of Manitoba to said order in council; also all correspondence respecting the same, between the Dominion government and the Manitoba government. Presented 15th July, 1895.—*Hon. Mr. Bernier.*

Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 11.

- 21.** Report of the Royal Commission on the Liquor Traffic in Canada, with full Index to the Report and to the Evidence. Presented 24th April, 1895, by Hon. G. E. Foster.
Printed for both distribution and sessional papers.
- 22.** Statement of Governor General's Warrants issued on account of the fiscal year 1894-95; made as directed by the Consolidated Revenue and Audit Act. Presented 22nd April, 1895, by Hon. G. E. Foster. *Not printed.*
- 23.** Return of Treasury Board Over-Rulings. *See No. 1a.*
- 24.** Statement of all superannuations and retiring allowances in the civil service during year ended 31st December, 1894, giving the name, rank, salary, service, allowance and cause of retirement of each person superannuated or retired; also whether vacancy filled by promotion or new appointment, and salary of any new appointee. Presented 23rd April, 1895, by Hon. G. E. Foster.
Not printed.
- 25.** Statement of expenditure on account of miscellaneous unforeseen expenses, from 1st July, 1894, to date. Presented 23rd April, 1895, by Hon. G. E. Foster. *Not printed.*

VOLUME 11—*Continued.*

26. Report of the Commissioner, Dominion Police, for the year 1894, under Revised Statutes of Canada, chapter 184, section 5. Presented 25th April, 1895, by Hon. J. Costigan *Not printed.*
27. Regulations relating to the education of Indian children, pursuant to section 12, chapter 32, 57-58 Victoria. Presented 25th April, 1895, by Hon. T. M. Daly..... *Not printed.*
28. Return to an order of the House of Commons, dated 24th April, 1895, showing petitions presented to the House of Commons, during the last two sessions and up to date of making return, from municipal councils, asking for legislation to secure improved facilities for drainage across lines of railway; giving date of presentation, by whom presented, and a copy of each form of petition, with names of municipalities from which each petition was sent. Presented 29th April, 1895.—*Mr. Casey* *Not printed.*
29. Supplementary return to an order of the House of Commons, dated 7th May, 1894, for a return showing the number of settlers brought into the Yorkton and Saltcoats district from Dakota, and into the Calgary district from Chicago, and the states of Washington, Idaho and Oregon, and showing in each case the nationality of such settlers, the cost of obtaining them, and the number that still remain and the occupations those remaining are engaged in. Presented 29th April, 1895.—*Mr. Martin.* .. *Not printed.*
30. Return of orders in council, in accordance with subsection (d) of section 38 of the regulations for the survey, administration, disposal and management of Dominion lands within the 40-mile railway belt in the province of British Columbia. Presented 1st May, 1895, by Hon. T. M. Daly. *Not printed.*
- 30a. Return of orders in council of 1894, relating to the department of the interior, in accordance with clause 91 of the Dominion Lands Act, chapter 54, Revised Statutes of Canada. And clause 46 of chapter 30, 57-58 Victoria, 1894, the Irrigation Act, as regards the order in council of the 11th of October, 1894. Presented 1st May, 1895, by Hon. T. M. Daly..... *Not printed.*
- 30b. Copy of an order in council of the 10th January, 1895, continuing for the current year the issue of licenses to United States fishing vessels to enter any ports on the Atlantic coast for the purchase of bait, etc. Presented 2nd May, 1895, by Hon. J. Costigan..... *Not printed.*
- 30c. Return to an address of the House of Commons to his excellency the Governor General, dated the 26th April, 1895, for: 1. Copies of all petitions, letters and documents, protesting against the Ordinance of the North-west Territories, No. 22, sanctioned at Regina on the 31st December, 1892. 2. Copies of all orders in council, correspondence and documents forwarded to the lieutenant governor of the North-west Territories, in relation to the said ordinance and to the amendment thereof. Presented 3rd May, 1895.—*Mr. Beausoleil.*..... *Not printed.*
- 30d. Return to an address of the House of Commons to his excellency the Governor General, dated 26th April, 1895, for copies of all orders in council granting or promising aid to the Hudson Bay Railway Company, and all reports and correspondence in connection with the same. Presented 3rd May, 1895.—*Mr. Laurier.*..... *Not printed.*
- 30e. Statement in reference to fishing bounty payments for 1893-94, required by chapter 96 of the Revised Statutes of Canada. Presented 9th May, 1895, by Hon. J. Costigan..... *Not printed.*
31. Return to an order of the House of Commons, dated 26th April, 1895, for a return showing the names of the several parties superannuated from the 31st of December, 1894, to the 1st day of April, 1895, the amount of superannuation allowance granted to each, the number of years' service, their age at retirement, and the number of years added to their time of service, if any. Presented 3rd May, 1895.—*Mr. McMullen* *Not printed.*
32. List of public officers to whom commissions have issued under chapter 19 of the Revised Statutes of Canada, during the past year 1894. Presented 3rd May, 1895, by Hon. W. H. Montague. *Printed in No. 16.*
33. Detailed statement of all bonds and securities registered in the department of the secretary of state for Canada, since last return, 1894, submitted to the parliament of Canada under section 23, chapter 19, of the Revised Statutes of Canada. Presented 3rd May, 1895, by Hon. W. H. Montague..... *Not printed.*

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34. Return to order of the House of Commons, dated 29th April, 1895, showing the several dates in the years 1888, 1889, 1890, 1891, 1892, 1893, 1894 and 1895, when the Public Accounts, the Trade and Navigation Returns, and the Report of the Auditor General, were ready for distribution to members of the senate and house of commons. Presented 6th May, 1895.—*Mr. Charlton. Not printed.*
35. Return under resolution of the 20th February, 1882, in so far as the same is furnished by the department of the interior, respecting the Canadian Pacific Railway Company. Presented 6th May, 1895, by Hon. T. M. Daly. *Not printed.*
- 35a. List of all land sold by the Canadian Pacific Railway Company, from the 1st October, 1893, to the 1st October, 1894. Presented 11th June, 1895, by Hon. T. M. Daly..... *Not printed.*
36. Return to an order of the House of Commons, dated 29th April, 1895, for a return showing the amount of moneys given as subsidies to the St. Lawrence and Adirondack Railway Company. Presented 7th May, 1895.—*Mr. Bergeron.....Not printed.*
37. Return to an order of the House of Commons, dated 29th April, 1895, showing the gross amount of money on deposit in each of the Dominion savings banks, including post office savings banks, on the 1st day of April, 1895. Presented 9th May, 1895.—*Mr. McMullen..... Not printed.*
38. Statement of the affairs of the British Canadian Loan and Investment Company, for the year ending 31st December, 1894; also a list of shareholders on 31st December, 1894. Presented 22nd April, 1895, by the Hon. The Speaker..... *Not printed.*
39. Report of the Railway Rates Commission, dated 7th May, 1895. Presented 10th May, 1895, by Hon. J. G. Haggart..... *Printed for both distribution and sessional papers.*
40. Return to an address of the House of Commons to his excellency the Governor General, dated 29th April, 1895, for copies of all letters, telegrams or other communications since the 1st of January, 1893, made or sent by Donald McCauley or any government agent or any other person in the Alberta district, to the government or to any member, officer or employee of the government, and of all letters, telegrams or other communications, since said date, sent by the government, or any member or officer of the government, to Donald McCauley or any government agent or other person in the Alberta district, concerning the entry of cattle into Canada from Montana. Presented 10th May, 1895.—*Mr. Mulock.....Not printed.*
41. Return to an address of the House of Commons to his excellency the Governor General, dated 23rd April, 1894, for copies of all letters, despatches and correspondence between the government and the high commissioner of Canada regarding the removal of the embargo on Canadian cattle entering English ports. Presented 10th May, 1895.—*Mr. McMullen..... Not printed.*
- 41a. Return to an address of the House of Commons to his excellency the Governor General, dated 26th April, 1895, for copies of all despatches, letters or other communications that have passed between the imperial and Canadian governments since the 1st July, 1892, in regard to the scheduling of Canadian cattle by Great Britain or the removal of such scheduling. Presented 29th May, 1895.—*Mr. Mulock.....Not printed.*
42. Statement of amounts paid for claims for bounty on pig iron manufactured in the Dominion, from 4th April, 1894, to 4th April, 1895. Presented 13th May, 1895, by Hon. N. C. Wallace.
Printed for sessional papers only.
- 42a. Return to an order of the House of Commons, dated 3rd June, 1895, for a statement showing the various amounts paid by way of bounty on pig iron made in Canada from Canadian ore, the quantities produced, the parties to whom the bounties were paid, and such other particulars as tend to show the effect of such bounties, since the date of the last return. Also a statement showing the same particulars as to bounties paid under the Act of 1894, 57-58 Victoria, chapter 9, upon iron puddled bars, and upon steel billets. Presented 2nd July, 1895.—*Mr. Edgar.*
Printed for sessional papers only.
43. Return to an order of the House of Commons, dated 24th April, 1895, for a copy of instructions given to the queen's printer and the Dominion statistician relative to the number of copies of the last edition of the Statistical Year Book which should be printed, and the method of distributing the same to members of the house and others. Presented 14th May, 1895.—*Mr. Casey..Not printed.*

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44. Statement in pursuance of section 17 of the Civil Service Insurance Act, for the year ending 30th June, 1894. Presented 15th May, 1895, by Hon. G. E. Foster.....*Not printed.*
45. Return to an order of the House of Commons, dated 28th May, 1894, for a return giving a list of all articles, with the value of each and the total value of all, imported from the United States during the last fiscal year for the use of the government in the public service. Presented 15th May, 1895. —*Mr. Landerkin*.....*Not printed.*
46. Return to an order of the House of Commons, dated 24th April, 1895, for copies of all documents, letters and contracts respecting the sale of newspapers on the Intercolonial Railway, executed or exchanged between the Canada Railway News Co., of Montreal, and the government, for the years 1892-93, 1893-94 and 1894-95. Presented 16th May, 1895.—*Mr. Choquette*... *Not printed.*
47. Return to an order of the House of Commons, dated 26th April, 1895, for a copy of all correspondence with the department of justice, relative to the reinstatement of James Fitzsimmons as deputy warden of the British Columbia penitentiary. Presented 17th May, 1895.—*Mr. Corbould*.
Not printed.
- 47a. Return to an address of the House of Commons to his excellency the Governor General, dated 26th April, 1895, for : 1. Copy of the instructions to Mr. Justice Drake, 1894, relative to the inquiry into the management of the British Columbia penitentiary. 2. Copy of evidence given before the royal commission held before Mr. Justice Drake, in 1894, relative to the management of the British Columbia penitentiary. 3. Copy of the report of Mr. Justice Drake thereon. Presented 22nd May, 1895.—*Mr. Corbould*.....*Not printed.*
- 47b. Return to an address of the Senate to his excellency the Governor General, dated 24th June, 1895, for copies of letters 1, 2, 3, 4 and 5. Also cheques A, B and C. Also letter of Rev. Mr. Morgan, marked exhibit E. All of which are referred to in Mr. Justice Drake's report of 1894, on the British Columbia penitentiary. Presented 2nd July, 1895.—*Hon. Mr. McInnes (Victoria)*.
Not printed.
48. Minutes of the proceedings of the recent conference between the representatives of the governments of Canada and Newfoundland touching the union of Newfoundland with the Dominion, together with copies of documents in connection with the proposed union. Presented 21st May, 1895, by Hon. G. E. Foster.....*Printed for sessional papers only.*
49. Return to an order of the House of Commons, dated 29th April, 1895, for copies for all correspondence of the pilot examiners of the county of Bonaventure with the department of marine and fisheries since 1890, and petitions to the said department from the inhabitants of the said county regarding compulsory pilotage. Presented 22nd May, 1895.—*Mr. Fauvel*..... *Not printed.*
50. Return to an order of the House of Commons, dated 24th April, 1895, for a return, in the form used in the statement usually published in the *Gazette*, of the exports and imports from the 1st day of July, 1894, to the 1st day of April, 1895, distinguishing the products of Canada and those of other countries ; and comparative statements from the 1st day of July, 1893, to the 1st day of April, 1894. Presented 22nd May, 1895.—*Sir Richard Cartwright*.....*Not printed.*
51. Return to an order of the House of Commons, dated 30th March, 1894, for a return showing amount of land grants made from public lands in Manitoba and the North-west Territories of Canada since 1st January, 1880, to religious denominations, religious sects, religious corporations and churches ; with details as to date of each grant, area of the same, and the denomination, sect, corporation, or church, to which each several grant was made. Presented 22nd May, 1895.—*Mr. Charlton*.
Not printed.
52. Return to an order of the House of Commons, dated 25th April, 1895, for copies of all correspondence between the department of the interior and Mr. Schomacher, Rev. T. D. Phillips, Mr. P. F. Daly, Captain Holmes, the Canadian Pacific Railway Company, and any other persons ; and also all reports received by the said department from any of its agents or other persons as to the transportation of a number of Jew peddlers from Chicago to Calgary with the intention of settling the same upon farms near Calgary, referred to in a letter dated 29th December, 1894, signed L. M. Fortier, addressed to the editor of the *Winnipeg Free Press*, and published in that paper on 4th January, 1895 ; also a statement showing what became of said Jew peddlers and how many of them were committed to jail in Calgary, and for what offences. Presented 22nd May, 1895. *Mr. Martin*.....*Not printed.*

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53. Return to an address of the House of Commons to his excellency the Governor General, dated 30th March, 1894, for a copy of all correspondence between the government, or any department or officer, and Mr. Connor, for the supply of plant, or equipment of any kind, for the manufacture of binder twine in Kingston penitentiary, and of all contracts entered into between him and the government for such supply. Presented 28th May, 1895.—*Mr. Mulock* *Not printed.*
- 53a. Return to an order of the House of Commons, dated 3rd June, 1895, for a return showing: 1. The quantity of binding twine manufactured at the Kingston penitentiary during the year 1894. 2. To whom the sales were made, and how much was realized per pound by the government. Presented 3rd July, 1895.—*Mr. Grieve* *Not printed.*
54. Return to an order of the House of Commons, dated 2nd May, 1895, for a return showing the amount of money collected for tolls, fees or rents of any kind by the Fredericton and St. Mary's Railway Bridge Company in each year, separately, up to the close of their last year's business; the amount of money paid the Dominion government as interest on the \$300,000 loaned to the company, and the arrears due to the 30th June, 1894, and the amount since paid, if any. Also copy of any mortgage securities held by the government in respect of said loan. Presented 28th May, 1895.—*Mr. Macdonald (Huron)* *Not printed.*
- 54a. Return to an address of the House of Commons to his excellency the Governor General, dated 3rd June, 1895, for copies of all returns made to the government of Canada by the Fredericton and St. Mary's Railway Bridge Company, of receipts and expenditures of said company during the period from October, 1888, to 30th June, 1889, and the years ending 30th June, 1890-91-92-93 and 1894. Presented 9th July, 1895.—*Mr. McMullen* *Not printed.*
55. Return to an order of the House of Commons, dated 29th April, 1895, for copies of the engineer's surveys and reports made during the last three years on the harbour and river at Liverpool, Nova Scotia, and of the best means of improving the same and of deepening the channel or entrance to said river, together with any plans and estimates prepared in reference thereto, and of all correspondence to any or from any member of the government referring to said harbour or river and survey. Presented 28th May, 1895.—*Mr. Forbes* *Not printed.*
56. Return to an order of the House of Commons, dated 29th April, 1895, for copies of all petitions, correspondence and reports in the railway department, relating to the construction of a siding or flag station on the Intercolonial Railway, at or near the River Inhabitants, in the county of Inverness, Nova Scotia. Presented 28th May, 1895.—*Mr. Cameron* *Not printed.*
57. Return to an order of the House of Commons, dated 26th April, 1895, for copies of all correspondence with the department of railways or with any member of the government in reference to the Inverness and Richmond Railway Company, the Inverness and Victoria Railway Company and the Boston and Nova Scotia Railway Company, from the 1st January, 1887, up to date, and with respect to subsidies and contracts granted to these companies respectively. Presented 28th May, 1895.—*Mr. Cameron* *Not printed.*
58. Return to an order of the House of Commons, dated 1st May, 1895, for copies of all correspondence between the government, or any person or persons, together with copies of all petitions to the minister of public works and of all reports of engineers, relating to the pier at Morden, Nova Scotia, since 1st January, 1891. Presented 28th May, 1895.—*Mr. Borden* *Not printed.*
59. Return to an address of the House of Commons to his excellency the Governor General, dated 26th April, 1895, for copies of any applications by or on behalf of Mr. Charlebois for payment or for reference to arbitration of his claim for extras for work or materials in connection with the erection of the "Langevin Block;" also copies of all letters, telegrams and other communications between the government or any department, member or officer of the government and Mr. Charlebois or any person on his behalf, and of all orders in council, reports and recommendations of any member or officer of the government in reference to any such application or in reference to any such claim. Presented 28th May, 1895.—*Mr. Mulock* *Not printed.*
60. Return to an address of the Senate to the Governor General, dated 11th July, 1894, for a statement showing, in detail, the several sums paid for public printing for the year ending 30th June, 1883, and 30th June, 1893, respectively. Presented 31st May, 1895.—*Hon. Mr. Power* *Not printed.*

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61. Return to an order of the House of Commons, dated 13th March, 1893, for a return giving the names of the 804 manufacturers of the city of London referred to in the census of 1891; the industries in which they are engaged, and the number of hands employed by each. Presented 3rd June, 1895.—*Mr. Mills (Bothwell)*..... *Not printed.*
- 61a. Return to an order of the House of Commons, dated 29th April, 1895, for a return giving the names of the various manufacturing or industrial establishments in the counties of Queen's and Shelburne, Nova Scotia, as mentioned in the last Census returns, together with the names of the owners thereof and number of employees therein. Presented 10th June, 1895.—*Mr. Forbes*..... *Not printed.*
- 61b. Return to an order of the House of Commons, dated 13th March, 1893, for a return showing separately the various kinds of manufacturing establishments that make up the total number of 67 with which Liverpool, Nova Scotia, is credited by Bulletin No. 12. Presented 10th June, 1895.—*Mr. Forbes*..... *Not printed.*
- 61c. Supplementary return to no. 61a. Presented 17th June, 1895.—*Mr. Forbes*..... *Not printed.*
- 61d. Return to an order of the House of Commons, dated 28th May, 1894, for a return showing a description of each of the industries established in the county of Guysboro' as reported in the Census of 1891, showing the names of the several manufacturers engaged in the said industries, respectively; also showing the number of employees in each of said industries. Presented 19th June, 1895.—*Mr. Fraser*..... *Not printed.*
- 61e. Return to an order of the House of Commons, dated 25th April, 1894, for a return showing a description of each of the industries established in the county of Lunenburg, as reported in the census of 1891; also showing the names of the several manufacturers engaged in the said industries, respectively, also showing the number of employees in each of said industries. Presented 9th July, 1895.—*Mr. Forbes*..... *Not printed.*
- 61f. Return to an address of the House of Commons to his excellency the Governor General, dated 13th March, 1893, for a statement showing, on the occasion of the taking of the last Census of Canada, the following particulars in regard to each of the following municipalities, viz: the towns of Aurora and Newmarket, the villages of Holland Landing, Stouffville and Sutton West, and the townships of King, Whitchurch, East Gwillimbury, North Gwillimbury and Georgina, in the county of York, and the village of Bradford and township of West Gwillimbury, in the county of Simcoe: (a) The number of inhabited houses. (b) The number of empty houses. (c) The number of houses under construction. (d) The total number of industrial establishments. (e) The total value of machinery and tools. (f) The total number of employees (classified as men, women and children, respectively). (g) The total number of steam engines. (h) The names and numbers of the various industries and manufacturers in each of said municipalities. (j) The aggregate of yearly wages paid in 1891, in each of said municipalities. (k) The value of the manufactured products in 1891, in each of said municipalities. (l) The total capital invested in industrial establishments in 1891, in each of said municipalities. Presented 12th July, 1895.—*Mr. Mulock*..... *Not printed.*
62. Return to an order of the House of Commons, dated 26th April, 1895, for a statement showing the date the government ice-boats commenced running between Cape Traverse, P.E.I., and Cape Tormentine, how many trips made, how many passengers crossed both ways, how many mail bags carried across. The amount of revenue therefrom, and the expenditure in connection of said service up to 15th April, 1895. Presented 7th June, 1895.—*Mr. Perry*..... *Not printed.*
63. Return to an order of the House of Commons, dated 1st May, 1895, for a return showing the names of the government inspectors of wheat at Fort William, the number of cars of wheat inspected during each of the years from 1887 to 1894, both inclusive, the number of bushels of wheat shipped out of the elevators at Fort William during each of said years, the average quantity of wheat in store in the Canadian Pacific Railway's elevators at Fort William during each of said years, the fees allowed for inspection, and the quantity of grain allowed to be taken from each car as a sample by the inspector. Presented 7th June, 1895.—*Mr. Martin*..... *Not printed.*
64. Return to an order of the House of Commons, dated 3rd June, 1895, for a statement of the number of cheese factories in Prince Edward Island operated under the direction of the Dominion dairy commissioner in the season of 1894; the gross product of those factories; the amount, per pound of cheese, advanced by the government to the patrons; the cost of delivering the milk; the cost

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- of making, per pound of cheese, as well as the total cost; the names of the markets where the products sold, and the date of sales; the names of the purchasers; the quantity sold to each, with the price in each case; the total cost of making sales, and the sum, per pound of cheese, finally paid to the patrons. Presented 11th June, 1895.—*Mr. McMillan*.....*Not printed.*
65. Return to an order of the House of Commons, dated 3rd June, 1895, for a copy of the letter addressed to the commissioner of Indian affairs by the local agent Bastien at La Jeune Lorette, province of Quebec, of date January, 1894, concerning the case of *Picard vs. Picard*. Presented 12th June, 1895.—*Mr. Laurier*.....*Not printed.*
66. Return to an order of the House of Commons, dated 24th April, 1895, for a statement showing the gross earnings of the Pontiac Pacific Junction Railway since the 30th day of June, 1894; also a statement showing the total expenditure of said railway from same period. Also a statement showing the total expenditure of said railway from the same period on the following accounts respectively: (a) Wages and salaries of employees. (b) Payments to the president as such. (c) Payments to the directors as such. (d) Payments for other working expenses. (e) Payments on construction account not included in above. Presented 12th June, 1895.—*Mr. Devlin*.....*Not printed.*
- 66a. Return to an order of the House of Commons, dated 10th June, 1895, for copies of reports made by officers of the government in connection with the Pontiac Pacific Junction Railway. Also copies of letters received by the government having reference to the same subject. Presented 24th June, 1895.—*Mr. Devlin*.....*Not printed.*
67. Return to an order of the House of Commons, dated 3rd June, 1895, for copies of all petitions, letters and other documents exchanged with or addressed to the postmaster general in reference to savings bank stamps. Presented 12th June, 1895.—*Mr. Lépine*.....*Not printed.*
68. Return to an order of the House of Commons, dated 26th April, 1895, for copies of all petitions, memorials, correspondence and other documents in relation to the claim made against the government by Mr. L. T. Puizé, of Frazerville, in the county of Temiscouata. Presented 13th June, 1895.—*Mr. Choquette*.....*Not printed.*
69. Return to an order of the House of Commons, dated 28th May, 1894, for copies of all correspondence in relation to tenders, and of all tenders received by the government since 1st January, 1890, relating to the purchase of timber limits on Indian reserves. Presented 13th June, 1895.—*Mr. Devlin*.....*Not printed.*
70. Return to an order of the House of Commons, dated 3rd June, 1895, showing the number of islands sold from the Thousand Island group, in the river St. Lawrence, during the years 1874 to 1878, inclusive, to whom sold, the price at which each separate parcel was sold, and the average price per acre for the total acreage sold. Also a similar return for the years 1879 to 1895, inclusive. Presented 14th June, 1895.—*Mr. Taylor**Printed for sessional papers only.*
71. Return to an order of the House of Commons, dated 10th June, 1895, showing the number of Experimental Farm Reports published for the year 1893. The number published in English and French, respectively. The number allotted to each member of the House of Commons and Senate. The number distributed from each of the experimental farms, and the number still on hand. Presented 14th June, 1895.—*Mr. Grievé*.....*Not printed.*
72. Return to an order of the House of Commons, dated 13th March, 1893, for copies of all correspondence and reports of government officials, relating to the construction of a public building at Kentville, N.S., and the purchase of a site for the same, in accordance with a vote of this House passed in 1886. Presented 14th June, 1895.—*Mr. Borden*.....*Not printed.*
73. Return to an order of the House of Commons, dated 3rd June, 1895, for copies of all papers and correspondence, not confidential, in connection with the disbandment of No. 3 Battery, Quebec Garrison Artillery. Presented 18th June, 1895.—*Mr. Langelier*.....*Not printed.*
74. Return to an address of the House of Commons to his excellency the Governor General, dated 24th April, 1895, for copies of all orders in council and departmental orders respecting the collection of tolls on public wharfs in the Lower St. Lawrence, and especially at St. John, Island of Orleans, and of all reports made by the collector respecting the collection of tolls at the said place. Presented 18th June, 1895.—*Mr. Laurier*.....*Not printed.*

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75. Return to an order of the House of Commons, dated 3rd June, 1895, for a return of all subsidized contracts made during the past twelve months, relating to the running of steamships between ports in the maritime provinces and ports in Cuba, Jamaica, or elsewhere in the West Indies. Presented 19th June, 1895.—*Mr. Davies*..... *Not printed.*
76. Return to an address of the House of Commons to his excellency the Governor General, dated 24th April, 1895, for a statement showing date of appointment of the Royal Commission on Prohibition, names of the commissioners and number of days on which the commission sat; also statement of total expenses incurred, up to date, on account of such commission, showing, separately, rate of pay per day allowed to each commissioner, and total amount so paid to each; amount paid for travelling expenses of each commissioner, and total travelling expenses; cost of reporting evidence taken by the commission; cost of printing such evidence, and the report of the commission; estimated total amount yet required to meet all remaining expenses connected with concluding the work of the commission. Presented 19th June, 1895.—*Mr. Cusey*..... *Not printed.*
77. Return to an order of the House of Commons, dated 10th June, 1895, for a return of all petitions, letters, and other papers to the government, asking for legislation to prevent alien labour being employed in Canada. Presented 19th June, 1895.—*Mr. Lowell*..... *Not printed.*
78. Return to an order of the House of Commons, dated 3rd June, 1895, for copies of all papers and correspondence relating to the purchase or lease of the property known as the "Old Carling Brewery" and situated in the city of London, on Waterloo and Pall Mall streets. Also copy of lease, if any. Presented 20th June, 1895.—*Mr. McMullen*..... *Not printed.*
79. Return to an order of the House of Commons, dated 24th April, 1895, for a return of all correspondence, agreements, reports, papers, etc., relating to the Canadian Mutual Aid, late the Canadian Mutual Life Association, and the Massachusetts Benefit Association, and for all correspondence, complaints, etc., from policy-holders; also all particulars regarding the amalgamation of the two companies or associations. Presented 20th June, 1895.—*Mr. Sproule*..... *Not printed.*
80. Return to an order of the House of Commons, dated 10th June, 1895, for a return giving copies of all petitions, letters and telegrams in the possession of the government relating to the placing of a bell-buoy on the inside of Little Hope island, off Lower Port Joli harbour. Presented 21st June, 1895.—*Mr. Forbes*..... *Not printed.*
81. Return to an address of the Senate to his excellency the Governor General, dated 7th June, 1895, for a return of the correspondence in regard to international copyright during the past year. Presented 21st June, 1895.—*Hon. Mr. Boulton*..... *Printed for sessional papers only.*
82. Return to an order of the House of Commons, dated 26th April, 1895, for a return showing the date the steamer "Stanley" commenced running in the fall of 1894, between Charlottetown, P.E.I., and Pictou, N.S., the date they commenced running between Georgetown, P.E.I., and Pictou, N.S. The date of each trip, both from Charlottetown and Georgetown to Pictou. The number of mail bags carried each trip. The number of passengers carried to and from Prince Edward Island. The receipts on account of passengers. The amount of freight carried both ways and the receipts therefor. The total expense and total receipts in connection with said steamer up to 15th April, 1895. And amount received for freight and passengers carried by the said steamer from Pictou to Charlottetown in the spring of 1894 and the spring of 1895, respectively. Presented 24th June, 1895.—*Mr. Perry and Mr. Macdonald (King's)*..... *Not printed.*
83. Return to an order of the House of Commons, dated 3rd June, 1895, for a statement showing the gross earnings of the Quebec and Lake St. John Railway since the 30th day of June, 1894. Also a statement showing the total expenditure of said railway from said period. Also a statement showing the total expenditure of said railway from the same period on the following accounts respectively: (a) Wages and salaries of employees. (b) Payments to the president as such. (c) Payments to directors as such. (d) Payments for other working expenses. (e) Payments on construction account not included in above. Presented 24th June, 1895.—*Mr. Lavergne*..... *Not printed.*
84. Return to an order of the House of Commons, dated 3rd June, 1895, for copies of all correspondence between H. Langevin, Félix Pilon, Alexandre Théoret, and others, concerning claims against the federal government on account of damages caused to their properties by the ss. "Ocean" breaking through lock no. 12 on the Beauharnois canal in the spring of 1894. Presented 24th June, 1895.—*Mr. Bergeron*..... *Not printed.*

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85. Return to an address of the House of Commons to his excellency the Governor General, dated 21st May, 1894, for copies of all correspondence that has passed between the post office department here, or any other department of the Canadian government and the government of the United States on the subject of certain packets of printed papers franked by a member of the United States Congress which were received in this country from the United States, and which, according to a statement made in the House by the postmaster general, 2nd April, were sent to the dead letter office as not being prepaid by stamps and not being legislative papers or documents. Also copies of all correspondence that has passed between the Canadian and United States governments on the subject of franked matter through the mails from one country to the other. Also copies of all correspondence that has passed between the post office department and the individuals to whom such rejected matter was addressed. Also copies of all correspondence between the post office department and any of the officers of the department on this subject, and copies of instructions sent to said officers in connection therewith. Presented 24th June, 1895.—*Mr. Somerville.*
Not printed.
86. General Rules and Orders, Exchequer Court of Canada. Presented 25th June, 1895, by Hon. W. H. Montague.....*Not printed.*
87. Return to an order of the House of Commons, dated 10th June, 1895, for copies of all tenders received by the government in response to an advertisement dated October, 1894, calling for tenders for the construction of section 1 of the Simcoe and Balsam Lake division and section 1 of the Peterborough and Lakefield division of the Trent canal. Also for the approximate quantities of the various classes of work as specified in the forms of tender for both the above sections, and on which the total amount of each tender was based. Presented 26th June, 1895.—*Mr. Somerville.*
Not printed.
88. Return to an order of the House of Commons, dated 3rd June, 1895, for a return of the manifests of the cargoes carried by the several steamships "Duart Castle," "Taymouth Castle," "Alpha" and "Beta" for the past twelve months ending 30th April last, subsidized to run between St. John and Halifax and Cuba and Jamaica and other ports in the West Indies. Also statement of the subsidies earned or paid to each of such steamships during such time. Also the names of all the shareholders in such steamships or in the company or companies entitled to receive such subsidies. Presented 27th June, 1895.—*Mr. Davies.*.....*Not printed.*
89. Return to an address of the House of Commons to his excellency the Governor General, dated 24th April, 1895, for copies of all correspondence not yet brought down between the Canadian government and the Imperial government and between the Imperial government and the French government concerning the French treaty. Presented 27th June, 1895.—*Mr. Laurier.*
Printed for sessional papers only.
90. Return to an order of the House of Commons, dated 3rd June, 1895, for a return of all correspondence and petitions from the council of the municipality of Morris, in the province of Manitoba, in reference to the taxation of unpatented lands held or occupied by settlers, within the limits of their municipality. Presented 28th June, 1895.—*Mr. LaRivière.*.....*Not printed.*
91. Return to an order of the House of Commons, dated 10th June, 1895, for copies of all correspondence with regard to the homestead entry of William Fleming for the north-east quarter of section 16 in township 9, range 14, west of the first principal meridian, and also of all correspondence with Nathaniel Boyd, M. P., as to said quarter-section, and of Mr. Boyd's lease of said land, and also of the regulations as to leasing land and as to homesteading leased lands. Presented 28th June, 1895.—*Mr. Martin.*.....*Not printed.*
92. Return to an address of the House of Commons to his excellency the Governor General, dated 14th May, 1894, for copies of all correspondence, reports or judgments, in relation to the dismissal of Mr. B. Loisselle (postmaster of Ste. Angèle de Monnoir). And a copy of the record, depositions, declaration and pleas in suit brought in Montreal of Loisselle vs. Guillet, and the inspector's report. Presented 2nd July, 1895.—*Mr. Brodeur* and *Mr. Langelier.*.....*Not printed.*
- 92a. Supplementary return to no. 92. Presented 12th July, 1895.—*Mr. Brodeur* and *Mr. Langelier.*
Not printed.

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93. Return to an order of the House of Commons, dated 10th June, 1895, for a return of all petitions, letters or other documents from the inhabitants of Duvar Road, Prince county, Prince Edward Island, or from any other person, asking for a flag station at Duvar Road railway crossing. Presented 2nd July, 1895.—*Mr. Perru*..... *Not printed.*
94. Return to an order of the House of Commons, dated 3rd June, 1895, for a return showing the names, if any, of persons appointed to the Civil Service of Canada under chapter 18, 57-58 Victoria, and the offices, if any, to which they were appointed. Presented 5th July, 1895.—*Mr. Maclean (York)*..... *Not printed.*
95. Return to an address of the House of Commons to his excellency the Governor General, dated 10th June, 1895, for copies of all orders in council respecting the purchase of a site for a post office building in the town of Portage la Prairie, in Manitoba; also for copies of all instructions to, and reports by, Mr. Daniel Smith respecting said site; also of all petitions presented to his excellency the governor general or the department of public works in connection with the selection of a site for said building. Presented 5th July, 1895.—*Mr. Martin*..... *Not printed.*
96. Return to an order of the House of Commons, dated 29th April, 1895, for a return showing the amounts paid in customs duties at Waneta, Nelson, Kaslo and the boundary, Kootenay river, from 1890 to 1894 inclusive, giving the amount paid yearly at each outpost. Also the names of the customs officers at those places and the salary paid to each. Presented 11th July, 1895.—*Mr. Mara and Mr. McMullen*..... *Not printed.*
97. Return to an order of the House of Commons, dated 10th June, 1895, for a return showing the names of vessels, etc., that paid wharfage dues at Tignish harbour, P.E.I., the amount paid by each vessel, the date of entry and clearance of each vessel, and the sum total collected and paid in for the last fiscal year. Presented 12th July, 1895.—*Mr. Perry*..... *Not printed.*
98. Return to an order of the House of Commons, dated 10th June, 1895, for copies of all correspondence and estimates of value for the 135 acres of lands on the banks of the Richelieu river sold to one Foster for \$650, the date of sale, and all correspondence as to value of timber as well as land. Presented 16th July, 1895.—*Mr. McMullen*..... *Not printed.*
99. Return to an order of the House of Commons, dated 24th June, 1895, for a return of all correspondence, petitions, memorials or other documents, relative to the claims of settlers in Manitoba and the Territories, having paid for their pre-emption lots, when others were allowed homesteading the same as a second homestead. Presented 16th July, 1895.—*Mr. LaRivière*..... *Not printed.*
100. Return to an order of the House of Commons, dated 3rd June, 1895, for copies of all correspondence and reports in reference to the condition of the breakwater across the Yarmouth Bar at Yarmouth, Nova Scotia, and a statement of the original cost and subsequent expenditure on the same. Presented 19th July, 1895.—*Mr. Flint*..... *Not printed.*
101. Return to an address of the Senate to his excellency the Governor General, dated 3rd June, 1895, for a copy of all memorials, petitions, representations and correspondence addressed to the government by the harbour commissioners of Montreal, or by any other corporation or individuals, concerning the finances of said corporation, the cost of works in progress or proposed for the enlargement of the harbour of Montreal, as well as of the modifications suggested in the said works. Also a copy of all memorials, plans, reports, petitions and correspondence relating to the construction of an inland basin and of a dry dock in the eastern part of the harbour of Montreal. Also a copy of all resolutions on this subject passed by the Montreal harbour commissioners. Also a copy of the order in council appointing a commission of engineers to inquire into the nature and cost of the works now being executed in the harbour of Montreal, together with a copy of the instructions given by the government to this commission. Also a copy of all evidence, or summary of evidence, given in the course of the inquiry held by the said commission. Also a copy of the report of the said commission, and of any special report by any of its members, and of all plans and statements of cost accompanying such reports. Presented 19th July, 1895.—*Hon. Mr. Desjardins*..... *Not printed.*
102. Return to an order of the House of Commons, dated 29th April, 1895, for copies of all petitions, correspondence and reports in regard to making Point Tupper the terminus of the Cape Breton Railway on the Strait of Canso, and with respect to the construction of a branch line of the government railway to Hawkesbury. Presented 22nd July, 1895.—*Mr. Cameron*..... *Not printed.*

VOLUME 11—*Concluded.*

- 103.** Return to an order of the House of Commons, dated 17th June, 1895, for a return of all correspondence, petitions, memorials, reports or documents, relative to the extension of the railway system in the province of Prince Edward Island. Presented 22nd July, 1895.—*Mr. Macdonald (Huron)*
Not printed.
- 103a.** Return to an address of the Senate to his excellency the Governor General, dated 3rd July, 1895, for copies of all petitions praying for railway extension in Prince Edward Island. Also the chief engineer's report thereon, showing the estimated cost, working expenses and probable earnings of said proposed branch railway; and also the estimated increased earnings on the Prince Edward Island Railway which will be effected by the operations of the said proposed branches. Presented 22nd July, 1895.—*Hon. Mr. Prowse**Not printed.*
- 104.** Return to an order of the House of Commons, dated 10th June, 1895, for a return giving copies of all lumber and timber supplied, under contract or otherwise, upon the Welland canal, from 1st January, 1885, to 1st January, 1895; the names of the contractors, the quantities supplied and the prices paid, either under contract with the government or by purchase. Presented 22nd July, 1895.—*Mr. Lowell**Not printed.*
- 105.** Return to an address of the Senate to his excellency the Governor General, dated 17th June, 1895, calling for certain papers in connection with the Baie des Chaleurs scandal. Presented 12th July, 1895.—*Hon. Mr. Landry**Not printed.*

REPORTS, RETURNS AND STATISTICS

OF THE

INLAND REVENUES

OF THE

DOMINION OF CANADA

FOR THE FISCAL YEAR ENDED 30TH JUNE

1894

PART I.—EXCISE, &c.

PRINTED BY ORDER OF PARLIAMENT



OTTAWA

PRINTED BY S. E. DAWSON, PRINTER TO THE QUEEN'S MOST
EXCELLENT MAJESTY

1894

[No. 7—1895.] *Price 20 cents.*

Inland Revenues—Excise.

*To His Excellency the Right Honourable Lord Aberdeen, Governor General of
Canada, &c., &c.*

MAY IT PLEASE YOUR EXCELLENCY :

I have the honour to transmit to Your Excellency the RETURNS AND STATISTICS of Inland Revenues of the Dominion of Canada, for the fiscal year ended 30th June, 1894, as prepared and laid before me by the Commissioner of Inland Revenue.

All of which is respectfully submitted.

JOHN FISHER WOOD,
Controller of Inland Revenue.

Inland Revenues—Excise.

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Inland Revenues—Excise.

REPORT

OF THE

COMMISSIONER OF INLAND REVENUE

To the Honourable J. F. Wood,
Controller of Inland Revenue.

SIR,—Herewith I have the honour to submit statements of the Inland Revenues collected by this department during the fiscal year ended 30th June, 1894, with the usual information as to the cost of collection and statistics respecting the sources whence those revenues were derived.

The following summary comparison shows the accrued revenue for the years ended 30th June, 1890, 1891, 1892, 1893 and 1894 respectively :—

	1890.	1891.	1892.	1893.	1894.
	\$	\$	\$	\$	\$
Excise.....	7,779,616	*6,825,152	†8,007,944	‡8,444,502	§8,364,964
Public Works.....	6,782	14,308	5,886	5,969	6,132
Culling Timber.....	17,420	20,178	9,107	11,493	11,990
Weights and Measures, Gas and Law Stamps.....	50,700	45,120	53,127	57,245	57,445
Other Revenue.....	63	247	462	1,020	964
Totals.....	7,854,581	6,905,005	8,076,526	8,520,230	8,441,495

*This amount includes \$38,213 accrued from methylated spirits.

†This amount includes \$22,753 accrued from methylated spirits.

‡This amount includes \$33,117 accrued from: methylated spirits.

§This amount includes \$12,396 accrued from methylated spirits.

The following statement exhibits the details of Excise Revenue accrued during the undermentioned years :—

	1.	2.	3.	4.	5.
	1890.	1891.	1892.	1893.	1894.
	\$	\$	\$	\$	\$
Spirits	4,620,393	3,546,942	3,876,677	4,142,057	4,133,638
Malt liquor.....	13,631	10,495	6,906	6,528	6,125
Malt.....	556,365	591,399	935,668	1,008,130	956,691
Cigars.....	603,473	615,179	634,177	692,266	700,535
Tobacco.....	1,896,359	1,926,987	2,421,993	2,446,130	2,448,957
Petroleum	39,737	40,407	43,503	46,343	41,269
Manufactures in bond	29,610	34,581	38,338	36,050	37,691
Seizures.....	3,886	2,727	5,367	8,989	3,285
Other receipts.....	16,162	18,222	22,562	24,792	24,377
Methylated spirits.....		38,213	22,753	33,117	12,396
Totals.....	7,779,616	6,825,152	8,007,944	8,444,502	8,364,964

The quantity of spirits produced during the year was 1,608,344 proof gallons, as compared with 3,856,955 proof gallons produced in the previous fiscal year. The raw material used in its production being as follows :—

	Lbs.
Malt	1,409,424
Indian corn	20,074,920
Rye.....	5,807,361
Wheat.....	232,025
Oats.....	267,640
	<u>27,791,370</u>

The transactions of the several distilleries will be found stated in detail in Appendix A (Statement No. 3), pages 54 and 55.

	Proof Gallons.
There were on the 1st July, 1893, in process of manufacture, including deficiencies	252,850
Manufactured during the fiscal year.....	1,608,344
Returned to distilleries for redistillation.....	266,639
Received into distilleries from other sources, duty paid..	5,037
Fusel-oil	33,309
	<u>2,166,179</u>

Inland Revenues—Excise.

These were disposed of as follows :—

	Proof Gallons.
Placed in warehouse under crown lock	1,911,467
Fusel-oil written off	33,309
Deficiency arising from rectification	1,206
Remaining in process of manufacture, 30th June, 1894, by actual stock taking	220,197
	2,166,179

The following statement shows the warehousing transactions in spirits during the year ended 30th June, 1894, and the four preceding years :—

	1	2	3	4	5	6	7	8	9
Fiscal Years.	In Warehouse at beginning of Year.	Warehoused during the year. Ex-distillery.	Otherwise Warehoused.	Taken for Consumption.	Exported.	Used in Bonded Factories.	Otherwise accounted for.	For Re-distillation.	In Warehouse at end of Year.
	Pf. Galls.	Pf. Galls.	Pf. Galls.	Pf. Galls.	Pf. Galls.	Pf. Galls.	Pf. Galls.	Pf. Galls.	Pf. Galls.
1889-90.....	9,948,182	5,136,688	31,015	3,521,194	12,003	254,666	74,518	154,325	11,099,179
1890-91.....	11,099,179	4,570,724	51,740	2,687,664	20,497	325,235	113,321	159,140	12,415,786
1891-92.....	12,415,786	3,561,255	46,940	2,545,935	32,223	312,140	120,300	177,304	12,836,079
1892-93.....	12,836,079	4,017,403	72,016	2,731,896	51,239	330,459	123,239	185,851	13,502,814
Totals.....	46,299,226	17,286,070	201,711	11,486,689	115,982	1,222,500	431,378	676,620	49,853,856
Annual average of four years ended 30th June, 1893. ...	11,574,806	4,321,517	50,428	2,871,672	28,990	305,622	107,844	169,155	12,463,464
1893-94.....	13,502,814	1,911,466	45,108	2,749,109	76,098	289,841	171,177	266,337	11,906,826

The quantities exported being as follows :—

	Proof Gallons.
1889-90	12,003
1890-91	20,497
1891-92	32,223
1892-93	51,239
1893-94	76,098

The following statement exhibits the entire quantities upon which duties were collected during the several years recited therein. The total column will be found to accord with the figures shown in Financial Statement No. 13, page 19 :—

Fiscal Years.	CANADIAN SPIRITS.		Imported Spirits used in Bonded Factories. Paid difference between Customs and Excise Duty.	Total Quantities upon which duty was collected.	Memorandum of Revenue accrued including License Fees.
	Paid duty Ex-Distillery.	Paid duty Ex-Warehouse			
	Pf. Gallons.	Pf. Gallons.	Pf. Gallons.	Pf. Gallons.	\$
1889-90	22,590	3,521,194	30,870	3,574,654	4,620,393
1890-91	21,177	2,687,664	51,532	2,760,373	3,546,941
1891-92	33,038	2,545,935	46,270	2,625,243	3,876,677
1892-93	15,701	2,731,896	71,817	2,819,414	4,142,057
Totals	92,506	11,486,689	200,489	11,779,784	16,186,068
Annual average of four years ended 30th June, 1893.....	23,126	2,871,672	50,122	2,944,946	4,046,517
1893-94	1,206	2,753,401	44,809	2,799,416	4,133,637

Inland Revenues—Excise.

MALT :

The following statement shows the transactions in malt during the year 1893-94, and the four years preceding :—

Fiscal Years.	1.	2.	3.	4.	5.	6.	7.
	In Warehouse at beginning of Year.	Manufactured during the Year.	Taken for Con- sumption.	Exported.	Otherwise ac- counted for.	In Warehouse at end of Year.	Memorandum of Revenue accrued, in- cluding Li- cense fees.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	\$
1889-90.	24,764,622	64,314,257	54,974,013	5,471,737	2,034,125	26,599,004	556,365
1890-91.	26,599,004	52,999,874	57,909,201	3,333,633	1,025,725	17,330,319	591,399
1891-92.	17,330,319	56,678,903 *1,056,348	46,425,882	69,855	775,241	27,794,592	935,667
1892-93.	27,794,592	53,933,419 *1,765,533	50,082,751	307,078	1,064,567	32,039,148	1,008,130
Totals	96,488,537	230,748,334	209,391,847	9,182,303	4,899,658	103,763,063	3,091,561
Annual average of four years ended 30th June, 1893. . .	24,122,134	57,687,083	52,347,962	2,295,576	1,224,914	25,940,766	772,890
1893-94.	32,039,148	47,459,005 *1,794,996	51,311,206	398,551	470,720	29,112,672	956,691

* Imported.

TOBACCO :

The following table exhibits the transactions during the Fiscal Years ended 30th June, 1890, 1891, 1892, 1893 and 1894, respectively, in Tobacco, Snuff, and Cigarettes :—

Fiscal Years.	1.	2.	3.	4.	5.	6.	7.		8.	9.
	In Warehouse 1st July.	Manufac- tured during the year.	Taken for Con- sumption.	Exported.	Otherwise accounted for.	In Warehouse 30th June.	Canadian.	Foreign.	Total Tobacco taken for Con- sumption.	Duty collected thereon, in- cluding License Fees.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	\$
1889-90	2,114,261	10,260,275	9,875,337	146,259	87,762	2,265,178	.....	90	9,875,427	1,896,359
1890-91	2,65,178	9,947,650	9,778,708	107,127	103,382	*2,228,611	.....	101	9,778,809	1,926,987
1891-92	*2,226,102	9,929,616	9,992,186	145,266	75,195	1,943,071	.....	422	9,992,608	2,421,993
1892-93	1,943,071	10,596,633	10,127,871	409,431	116,801	1,885,601	.....	802	10,128,673	2,446,130
Totals	8,548,612	40,734,174	39,774,102	808,083	363,140	8,317,461	.....	1,415	39,775,517	8,291,460
Average for four years ended 30th June, 1893	2,137,153	10,183,543	9,943,525	202,021	95,785	2,079,365	.....	354	9,943,879	2,072,865
1893-94	1,885,601	10,455,722	10,002,347	292,549	50,430	1,996,002	.....	174	10,002,521	2,443,957

* NOTE.—Hitherto cigarettes have been calculated at 2½ lbs. per thousand, but it is found to be more correct to reckon them at 3 lbs. The balance brought forward from 1890-91 has been corrected accordingly.

Inland Revenues—Excise.

The following is a statement of Canadian tobacco taken for use during the last five years:—

Fiscal Years.	Leaf and Twist paid duty.	Taken for use in Manufactories.	Totals.
	Lbs.	Lbs.	Lbs.
1889-90	79,518	602,095	681,613
1890-91	84,624	286,464	371,088
1891-92	72,583	400,718	473,301
1892-93	78,427	505,010	583,437
1893-94	88,110	816,725	904,835

The following statement shows the quantity of Canadian roll tobacco which paid duty, and the divisions within which such duty was collected. The quantities shown are included in the foregoing statement (column 3):—

DIVISIONS.	LICENSES.		Tobacco paid Duty during Year ended 30th June, 1894.	Duty collected, including License Fees.
	No.	Amount.		
		\$ cts.	Lbs.	\$ cts.
Ottawa	2	4 00	360	22 00
Windsor	1	2 00	355	19 75
Joliette	35	51 00	25,307	1,316 35
Montreal	63	122 00	40,233	2,133 65
St. John's	1	2 00	.....	2 00
Terrebonne	66	132 00	21,855	1,224 75
Total	168	313 00	88,110	4,718 50
Total for previous year	84	162 00	78,427	4,063 88

The following statement shows the transactions in Cigars during the fiscal year ended 30th June, 1894, and the four years preceding :—

Fiscal Years.	1.	2.	3.	4.	5.	6.	7.	8.
	In Warehouse 1st July.	Manufactured during the Year.	Assessment to bring production up to Standard.	Taken for Consumption.	Exported.	Otherwise accounted for.	In Warehouse 30th June.	Memorandum of Revenue accrued including License Fees.
	No.	No.	No.	No.	No.	No.	No.	\$
1889-90.....	10,798,175	100,311,140	165,392	98,976,117	124,550	11,800	12,157,240	603,473
1890-91.....	12,157,240	100,081,550	25,401	101,142,481	178,775	29,985	10,912,950	615,180
1891-92.....	10,912,950	107,927,813	7,298	104,523,791	136,100	.....	14,183,170	634,177
1892-93.....	14,183,170	114,240,490	30,759	114,668,809	526,510	152,400	13,206,700	692,266
Totals.....	48,046,535	422,660,993	228,850	419,316,198	965,935	194,185	50,460,060	2,545,096
Annual average of four years ended 30th June, 1893.....	12,011,634	105,665,248	57,212	104,829,049	241,484	48,296	12,615,015	636,274
1893-94.....	13,206,700	120,345,137	44,623	115,440,480	480,825	875	17,674,280	700,535

Inland Revenues—Commissioner's Report.

The revenue derived from goods manufactured in bond during the past five years has been as follows :—

1889-90	\$29,610
1890-91	34,581
1891-92	38,338
1892-93	36,050
1893-94	37,691

INSPECTION OF PETROLEUM :

The number of packages of Canadian petroleum inspected during the year is 303,002, and the fees collected thereon \$26,445.

The number of imported, inspected by officers of the department, is 224,170, and the fees collected thereon \$14,824.

PUBLIC WORKS :

The revenue from this source was as follows :

	1892-93.	1893-94.
Hydraulic and other rents	\$3,683	\$3,761
Minor Public works	2,286	2,371

CULLING TIMBER :

The amount accrued upon culling of timber was, during 1893-94, \$11,990.14, the cost of the service having been \$25,281.18.

With the decay of the square timber trade, which is declining year by year, the main purposes for which the Cullers' Act was passed, have been served. It seems desirable to consider whether it has not outgrown its usefulness and whether—a fair provision being made for those who have spent many years in working under its provisions—the time has not now arrived for its repeal.

If its entire repeal would be a serious inconvenience to those engaged in exporting square timber and deals across the seas, then its working could be placed under the General Inspection Act as in the case of cereals, flour and other staples, when the expenses would be borne only by those voluntarily invoking the provisions of the Act. They would cease to be a charge upon the revenues of the country.

WEIGHTS AND MEASURES AND GAS :

The usual special reports in relation to these services have been prepared, containing full statistical information.

The revenue accrued from these services and from law stamps of the Supreme and Exchequer Courts was \$57,445.32.

PREVENTION OF ADULTERATION OF FOOD AND AGRICULTURAL FERTILIZERS :

The usual supplementary report in relation to this service will be submitted containing details of the work done and the reports of the analysts.

INSPECTION OF STAPLES :

The usual statistics in relation to the service will be found in Appendices **B** and

C.

METHYLATED SPIRITS :

The quantity of methylated spirits manufactured during the year was 125,057 proof gallons ; 123,443 gallons were sold. A statement of details appears on pages 46 and 93.

Appendix **B** contains, as usual, the details concerning illicit stills seized during the year.

Appendix **F** shows the amount of Excise Revenues collected at each outoffice and under various headings, separately.

I have the honour to be, sir,

Your obedient servant,

E. MIALL, .

Commissioner.

OTTAWA, 31st October, 1894.

Inland Revenues—Commissioner's Report.

APPENDIX A.

TABLE showing the Annual Consumption per head of the undermentioned Articles paying Excise or Customs Duties, and the Revenue per head derived annually.

YEARS.	DOMINION OF CANADA.									
	Quantity.					Duty.				
	Spirits.	Beer.	Wine.	Tobacco.	Petroleum.	Spirits.	Beer.	Wine.	Tobacco.	Petroleum.
	Galls.	Galls.	Galls.	Lbs.	Galls.	\$	\$	\$	\$	\$
1868	1·604	2·269	·174	1·738	·193	1·028	·097	·043	·176	·014
1869	1·124	2·290	·115	1·755	·575	·761	·092	·037	·193	·041
1870	1·434	2·163	·195	2·190	1·103	·962	·085	·049	·259	·061
1871	1·578	2·490	·259	2·052	1·591	1·059	·095	·056	·336	·077
1872	1·723	2·774	·257	2·481	1·302	1·160	·108	·070	·422	·076
1873	1·682	3·188	·238	1·999	1·387	1·135	·120	·066	·350	·084
1874	1·994	3·012	·288	2·566	1·618	1·363	·119	·086	·442	·103
1875	1·394	3·091	·149	1·915	1·589	1·127	·114	·069	·428	·098
1876	1·204	2·454	·177	2·316	1·360	1·182	·098	·075	·513	·105
1877	·975	2·322	·096	2·051	1·103	·949	·109	·057	·446	·084
1878	·960	2·169	·096	1·976	.....	·927	·147	·052	·439	.....
1879	1·131	2·209	·104	1·954	.....	1·095	·125	·057	·449	.....
1880	·715	2·248	·077	1·936	.....	·772	·081	·055	·428	.....
1881	·922	2·293	·099	2·035	.....	·990	·081	·073	·443	.....
1882	1·009	2·747	·120	2·150	.....	1·084	·098	·092	·485	.....
1883	1·090	2·882	·135	2·280	.....	1·186	·103	·097	·473	.....
1884	·998	2·924	·117	2·476	.....	1·074	·104	·082	·365	.....
1885	1·126	2·639	·109	2·623	.....	1·198	·111	·074	·393	.....
1886	·711	2·839	·110	2·052	.....	1·007	·091	·074	·502	.....
1887	·746	3·084	·095	2·062	.....	1·045	·100	·066	·514	.....
1888	·645	3·247	·094	2·093	.....	·944	·110	·066	·509	.....
1889	·776	3·263	·097	2·153	.....	1·107	·114	·068	·529	.....
1890	·883	3·360	·104	2·143	.....	1·257	·121	·072	·539	.....
1891	·745	3·790	·111	2·292	.....	1·094	·137	·080	·590	.....
1892	·701	3·516	·101	2·291	.....	1·156	·211	·075	·680	.....
1893	·740	3·485	·094	2·314	.....	1·235	·218	·070	·691	.....
1894	·742	3·722	·089	2·264	.....	1·235	·205	·060	·683	.....
Average	1·087	2·832	·137	2·154	.....	1·079	·118	·063	·454	.....

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

E. MIALl,
Commissioner.

APPENDIX 33.

List of Inspectors and Deputy Inspectors of Staple Articles of Canadian Commerce who are empowered to act under the Inspection Act, Revised Statutes, chap. 99, and amending Acts, made up to the 30th June, 1894; also showing the District for which they are appointed, and the Territory comprised in each District.

Districts.	Territory comprising Districts.	Date of Order in Council.	Articles.	Names.	Office.	Residences.
<i>Ontario.</i>						
Brant and Haldimand	Countries of Brant and Haldimand	Sept. 27, 1873	Leather and rawhides.	Wm. G. Culbard.	Inspector	Paris.
E Bruce and Grey	do Bruce and Grey	do 27, 1873	Fish and fish oils	John Campbell	Dep. Inspector	Kincardine.
do	do	do 27, 1873	do	Geo. S. Miller	do	Owen Sound.
Carleton and Russell.	do Carleton and Russell.	do 27, 1873	Leather and rawhides.	Jos. W. Barringer.	Dep. Inspector	Windsor.
Essex, Kent and Lambton	do Essex, Kent and Lambton	do 27, 1873	do	do	do	do
Frontenac, Leeds and Addington	do Frontenac, Leeds & Addington	do 27, 1873	do	do	do	do
Grenville, Dundas and Stormont.	do Grenville, Dundas & Stormont.	do 27, 1873	do	do	do	do
Glengarry and Prescott	do Glengarry and Prescott.	do 27, 1873	Leather and rawhides.	do	do	do
Hamilton.	All that territory lying south of the main line of the Grand Trunk Railway (not incorporated in the Division of Toronto) and east of the Port Dover and Lake Huron Railway	Nov. 10, 1885	Wheat and other grain	Edward Adamson	Inspector	Hamilton.
do	City of Hamilton	Aug. 29, 1873	Leather and rawhides.	James Brown	do	do
Kingston.	Comprising all that portion of Ontario lying west of Kingston and Pembroke Railway, and east of the eastern boundaries of the Counties of Ontario, Muskoka and Parry Sound	Nov. 10, 1885	Wheat and other grain	Wm. Blecker	do	Port Hope.
do	City of Kingston.	Aug. 29, 1873	Leather and rawhides.	Peter McKim	do	Kingston.
Lanark and Renfrew.	Counties of Lanark and Renfrew.	Sept. 27, 1873	Beef and pork	Wm. Gardner	do	Dalhousie.
Lennox and Prince Edward.	do Lennox and Prince Edward.	do 27, 1873	do	do	do	do
Lincoln and Welland.	do Lincoln and Welland.	do 27, 1873	Leather and rawhides	Michael Cairns.	Inspector	St. Catharines.
London.	All that territory lying south of the line of the Grand Trunk Railway and west of the line of the Port Dover and Lake Huron Railway.	Nov. 10, 1885	Wheat and other grain	Simpson Thompson	Inspector	London.
do	City of London.	Aug. 29, 1873	Leather and rawhides.	do	do	do
Middlesex and Elgin	Counties of Middlesex and Elgin	Sept. 27, 1873	do	do	do	do

Inland Revenues—Commissioner's Report.

District	Description	Date	Inspector	Agent
Northumberland and Hastings	do Northumberland and Hastings.	do	do	do
Ontario and Durham	do Ontario and Durham.	27, 1873	do	do
Oxford and Norfolk	do Oxford and Norfolk.	27, 1873	do	do
Ottawa	Comprising all that portion of Ontario lying east of the Kingston and Pembroke Railway.	do	do	do
do	City of Ottawa.	Nov.	Inspector	Belleville.
Perth and Huron	Countries of Perth and Huron.	Aug.	do	do
Peterborough and Victoria	do Peterborough and Victoria.	27, 1873	do	do
Stratford	Comprising all that territory lying north of the Grand Trunk Railway between Guelph and Sarnia, and west of the western boundary of the Toronto Division; also all stations upon the line of the Grand Trunk and Georgian Bay Extension between Stratford and Warton.	Nov.	Inspector	Kingston.
Toronto	Beginning at the western boundary of the Kingston Division, thence westerly along the north shore of Lake Ontario to Burlington, thence northerly along the route of the Hamilton and North-western Railway to Georgetown, thence westerly to Guelph, along the line of the Grand Trunk Railway, and thence north-westerly by the western-most route of the Wellington, Grey and Bruce Railway to Kincardine, excepting thereout all stations upon the line of the Grand Trunk and Georgian Bay Extension, which shall be deemed to be within the Inspection Division of Stratford.	Nov. 10, 1885	Inspector	Toronto.
do	City of Toronto and Counties of York and Peel.	do	do	do
do	do	do	do	do
Port Arthur	Town of Port Arthur and the territory adjacent thereto and comprised within a radius of 15 miles.	April 26, 1875	do	do
Simcoe and Algoma	Counties of Simcoe and Algoma.	do	do	do
Wellington and Waterloo	do Wellington and Waterloo.	Sept. 11, 1885	do	Port Arthur.
Wentworth and Halton	do Wentworth and Halton.	Sept. 27, 1873	do	do
Quebec		do	do	do
Drummond and Arthabaska	Counties of Drummond and Arthabaska.	Sept. 13, 1877		
Gaspé and Bonaventure	do Gaspé, Bonaventure and the Magdalen Islands.	Oct. 19, 1877		
Hochelaga	County of Hochelaga.	April 12, 1886	Inspector	Hochelaga.

List of Inspectors and Deputy Inspectors of Staple Articles of Canadian Commerce, &c.—*Concluded.*

Districts.	Territory comprising Districts.	Date of Order in Council.	Articles.	Names.	Office.	Residences.
<i>Quebec—Continued.</i>						
Lévis.....	Countries of Lévis, Lotbinière, Bellechasse and Dorchester.....	March 15, 1886	Leather and rawhides..	Hospice Labelle.....	Inspector.....	Montreal.
Montreal.....	City of Montreal.....	Aug. 29, 1873	Flour and meal.....	W. E. Scott.....	Dep. Inspector.....	do
do	do	do	Wheat and other grain.....	James Doheny.....	Inspector.....	do
do	do	do	Beef and pork.....	Edward J. Major.....	do	do
do	do	do	Ashes.....	.....	.....	do
do	do	do	Fish and fish oils.....	.....	.....	do
do	do	do	Leather and raw hides.....	Antoine Masson.....	Inspector.....	do
Ottawa, County of.....	County of Ottawa, including City of Hull.....	Feb. 5, 1884	do	D. Skyes.....	Dep. Inspector.....	Hull
Quebec.....	City of Quebec.....	Aug. 29, 1873	Flour and meal.....	B. Simard.....	Inspector.....	do
do	do	do	Beef and pork.....	Philéas Rousseau.....	Dep. Inspector.....	Quebec.
do	do	do	.....	David Nolan.....	Inspector.....	do
do	County of Quebec, Montmorency, Charlevoix, Saguenay and Chicoutimi; for the purposes of inspection of fish and fish oils.....	April 29, 1878	Fish and fish oils.....	Louis Côté.....	Dep. Inspector.....	do
do	City of Quebec.....	do	Leather and raw hides.....	Aldéric Fortin.....	Inspector.....	do
do	do	do	do	Joseph Légaré.....	Dep. Inspector.....	do
do	do	do	Butter.....	Pierre Patoine.....	Inspector.....	do
Témiscouata and Kamouraska.....	Countries of Témiscouata and Kamouraska.....	April 1, 1875	.....	.....	.....	do
<i>New Brunswick.</i>						
Carleton.....	That portion of the County of St. John, including Town of Carleton, lying to the west of the river.....	March 18, 1876	Fish and fish oils.....	S. L. Brittain.....	Inspector.....	Carleton.
Gloucester.....	County of Gloucester.....	Oct. 12, 1876	do	Fred. Witzel.....	do	Gloucester.
do	do	do	do	P. J. Comeau.....	Dep. Inspector.....	Petit Rocher.
Northumberland.....	do Northumberland.....	April 23, 1880	do	.....	.....	do
Restigouche.....	do Restigouche.....	May 23, 1882	Fish and fish oils.....	.....	.....	do
St. John.....	That portion of the City and County of St. John, lying to the east of the river.....	March 18, 1876	do	F. W. Thomson.....	Inspector.....	St. John.

Inland Revenues—Commissioner's Report.

do do York.	do do County of York	do do do	do do do	Leather and raw hides. do do	Geo. Murdock. Chas. Clarke. Israel Atherton	Dep. Inspector do Inspector	do do Fredericton.
<i>Nova Scotia.</i>							
Annapolis.	do Annapolis.	do	June 25, 1877	Fish and fish oils.	Israel Letteny	do	Granville.
Antigonish	do Antigonish	do	Oct. 16, 1873	do			
Argyle	Township of Argyle for fish and fish oils only.	do	April 25, 1879	do			
Barrington.	Township of Barrington	do	do 20, 1876	do			
Cape Breton	County of Cape Breton.	do	July 8, 1874	Fish and fish oils.			
Colchester	County of Colchester.	do		do			
Guyborough	do Guyborough	do		do			
Halifax	City and County of Halifax.	do	Oct. 16, 1873	do	Joe. Reyno.	Dep. Inspector	Herring Cove.
do	do	do	do	Fish and fish oils.	Chas. Fulker.	do	Devil's Head.
Pictou.	County of Pictou	do	Oct. 11, 1894	do	James Allen.	Inspector	Halifax.
do	do	do	Oct. 16, 1873	Leather.	John Sutherland	Inspector	Pictou.
Queen's.	County of Queen's.	do	do	Hides.	Charles Wilson.	do	do
Shelburne	Township of Shelburne.	do	Feb. 23, 1891	Fish and fish oils.			
Victoria	County of Victoria	do	April 20, 1876	do	J. A. Matheson.	Inspector	S. Bay, Ingonish.
do	do	do	Oct. 16, 1873	do	Geo. Fader.	Dep. Inspector	Englishtown.
do	do	do	do	do	John McNeil	do	Ingonish.
do	do	do	do	do	Hugh McQueen.	do	North Shore.
do	do	do	do	do	Issac Roper.	do	Ingonish.
do	do	do	do	do	Murdoch McDonald.	do	Neil's Harbour.
Isle Madame	County of Richmond.	do	May 10, 1880	do	E. E. Binet.	Inspector	Arichat.
Lunenburg	Lunenburg	do	Aug. 29, 1892	do	Francis Smith	do	Lunenburg.
Inverness.	County of Inverness.	do		do			
Richmond	County of Richmond, exclusive of territory set apart as the District of Isle Madame.	do		do			
Yarmouth	County of Yarmouth.	do		Fish and fish oils.			
Windsor	Township of Windsor in County of Hants.	do		do			
<i>Prince Edward Island.</i>							
Charlottetown	Province of Prince Edward Island	do	June 22, 1886.	Leather and raw hides.			
Prince	County of Prince	do	do 19, 1886.	Fish and fish oils.			
<i>Manitoba.</i>							
Winnipeg.	City of Winnipeg	do	Aug. 20, 1884.	Wheat and other grain	David Horn	Inspector	Winnipeg.
do	do	do	do	do	James Massie.	Dep. Inspector	do
do	do	do	do	Leather and raw hides.	W. J. Bird.	Inspector	do

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DEPARTMENT OF INLAND REVENUE,
OTTAWA, 20th September, 1894.

E. MIALI,
Commissioner.

APPENDIX C.

STATEMENT showing Quantity of Certain Staple Articles of Canadian Commerce inspected under provisions of 37 Vic., Cap. 45, during the year ended 30th June, 1894, and the Fees accrued thereon as returned to the Department of Inland Revenue by the respective Inspectors.

WHEAT AND OTHER GRAIN.

DISTRICTS.	WHEAT.															
	Manitoba Hard.				American.			Northern.			Spring.					
	Extra.	No. 1.	No. 2.	No. 3.	No. 4.	No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.	Re-jected.	
Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	
Montreal	6,900	24,060	173,940	14,820	131,820	41,760	20,460									
Kingston			4,800										900	400		
Toronto		59,640	129,160	(Rej. 3,600)				1,080					1,080	1,800		
Port Arthur	6,840	2,588,980	1,435,260	132,240				258,980	16,100	1,520	45,880	14,060				
Winnipeg	9,880	1,606,660	646,860	106,120	380			117,740	19,000	380	5,700	380				3,420
	23,620	4,279,340	2,380,020	253,180	131,820	41,760	20,460	377,900	35,100	1,900	53,560	69,200	300			26,820

Inland Revenues—Commissioner's Report.

WHEAT AND OTHER GRAIN—Continued.

WHEAT—Continued.

DISTRICTS.	WHEAT—Continued.												No Grade.								
	Goose.			Frosted.			White Winter Fife.			White Winter.		Mixed Winter.		Red Winter.							
	No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.		No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.	Re- jected	
Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	
Montreal.....		29,200	600			1,500						14,280	81,660		15,960						560
Kingston.....												800	8,100								
Toronto.....	16,920	720	360		4,680		67,940		4,680						3,960						
Port Arthur.....				19,000	6,460	760	48,700	10,640								124,840					
Winnipeg.....				4,560	3,040		20,240	13,680													36,860
	16,920	29,920	960	23,560	12,080	760	68,620	92,260	4,680	15,080	89,760	3,960	15,960	238,000	1,500	2,680	100,420				

STATEMENT showing Quantity of certain Staple Articles of Canadian Commerce inspected, &c.—Continued,
WHEAT AND OTHER GRAIN—Continued.

DISTRICTS.	OTHER GRAIN.													
	Condemned.			Buckwheat.			Indian Corn.			Oats.			Rye.	
	No. 2.	No. 3.	Re-jected.	No. 2.	No. 3.	Re-jected.	No. 1.	No. 2.	No. 3.	Re-jected.	Feed.	No. 2.	No. 3.	
Montreal	Ctls. 122,392	Ctls. 19,548	Ctls. 2,016	Ctls. 3,597,352	Ctls. 1,400	Ctls. 1,940	Ctls. 62,844	Ctls. 755,248	Ctls. 121,576	Ctls. 68,200	Ctls. 40,228	Ctls. 40,228	Ctls. 840	
Kingston	Ctls. 56,700						Ctls. 2,500					Ctls. 400		
Toronto	Ctls. 61,912			Ctls. 48,276		Ctls. 720	Ctls. 612	Ctls. 48,960	Ctls. 600	Ctls. 612	Ctls. 2,640	Ctls. 2,640		
Port Arthur	Ctls. 15,580						Ctls. 380	Ctls. 77,520			Ctls. 21,280			
Winnipeg														
	Ctls. 115,580	Ctls. 19,548	Ctls. 2,016	Ctls. 3,646,628	Ctls. 1,400	Ctls. 2,660	Ctls. 66,336	Ctls. 910,728	Ctls. 122,176	Ctls. 68,812	Ctls. 21,280	Ctls. 43,268	Ctls. 840	

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Inland Revenues—Commissioner's Report.

WHEAT AND OTHER GRAIN—Concluded.

OTHER GRAIN—Concluded.

DISTRICTS.	Barley.										Peas.			Fees. \$ cts.									
	No. 1.		No. 2.		No. 3 Extra.		No. 4.		Two Row.		No. 3.		No. 1.		No. 2.		No. 3.		No. 3 B.F.		Rejected.		
	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.		Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.	Ctls.
Montreal.....	33,308	2,016	9,996											13,500	1,039,820	111,720						14,700	7,314 25
Kingston.....	65,080	10,100		1,200	1,900	2,862	1,800	576						2,000	38,450	3,100					7,200		280 10
Toronto.....	68,105	31,000	5,760											4,320	364,840	22,000						3,240	2,985 00
Port Arthur.....																							8,770 90
Winnipeg.....																							4,443 60
	166,493	43,116	15,756	1,200	1,900	2,862	11,300	576						19,820	1,443,110	136,820					7,200		23,173 85

FLOUR AND MEAL.

DISTRICT.	Patent Spring.		Straight Roller.		Extra.		Superfine.		Strong Bakers.		On Sample.		Sour.		Rejected.		Fees. \$ cts.
	Bags.		Brls. Bags.		Brls. Bags.		Brls. Bags.		Brls. Bags.		Brls. Bags.		Brls. Bags.		Brls. Bags.		
	Brls.	Bags.	Brls.	Bags.	Brls.	Bags.	Brls.	Bags.	Brls.	Bags.	Brls.	Bags.	Brls.	Bags.	Brls.	Bags.	
Quebec.....	75	1,987	7,096		3,135	1,975	300	1,092	439	485	686	468	1,911	406	150		359 52

STATEMENT showing Quantity of certain Staple Articles

BEEF AND

DISTRICT.	BEEF.		
	Mess.	Prime Mess.	Rejected.
	Brls.	H. Brls.	H. Brls.
Quebec.....	36	99	13

PICKLED

DISTRICTS.	Salmon.			Sea Trout.		Mackerel.	
	Tcs.	Brls.	½ Brls.	Brls.	½ Brls.	Brls.	½ Brls.
Quebec.....	19	717	9	73	23		
Carleton, N.B....							
St. John.....							
Halifax.....		3,224	34	91		6,924	206
Arichat.....						116	1
Lunenburg.....						396	31
Victoria.....		9	1			219	
Totals.....	19	3,950	44	164	23	7,655	238

FISH

DISTRICTS.	Whale Oil.			Seal Oil.					
	No. 2 Straw.	No. 3 Brown.		No. 2 Pale.	No. 3 Straw.		No. 4 Brown.		No. 5 Dark Brown.
	Tierces.	Tierces.	Brls.	Tierces.	Tierces.	Brls.	Tierces.	Brls.	Tierces.
Quebec.....	8	5	1	72	1,100	28	62	3	2
St. John.....									
Halifax.....				297	95	1	58		37
Lunenburg.....									
Totals.....	8	5	1	869	1,195	29	120	3	39

Inland Revenues—Commissioner's Report.

of Canadian Commerce inspected, &c.—Continued.

PORK.

PORK.				Fees.
Mess.	Prime Mess.	Thin Mess.	Rejected.	
Brls.	Brls.	Brls.	Brls.	\$ cts.
617	93	7	9	217 90

FISH.

Herrings.		Gaspereaux and Alewives.		Codfish.	Other Fish.	Fees.
Brls.	½ Brls.	Brls.	½ Brls.	Brls.	Brls.	
						\$ cts.
				5,225	271	489 67
1,036	43					326 05
	20	6,530				630 43
3,254	3,911	7,048		9		1,548 37
3,049	23	1,898	9			30 92
138	241	1				79 03
340		180	8			23 05
				5,234	271	3,127 52
7,817	4,238	15,657	17			

OIL.

Porpoise Oil.				Cod Oil.				Hake Oil.		Dog Oil.		Other Fish Oil.	Fees.		
No. 1 Pale.		No. 2 Straw.		No. 3 Brown.		A.		B.		A.		B.		A.	
Pv'chms.	Tierces.	Tierces.	Brls.	Tierces.	Tierces.	Brls.	Tierces.	Tierces.	Brls.	Tierces.	Tierces.	Tierces.	Tierces.	Tierces.	
														\$ cts.	
13	13	11		1	695	3	11							1	402 55
			2			352									80 00
					1,053	24	42	10	25	180	4	19	15		336 05
					359	3	30	1							78 20
13	13	11	2	1	2,107	382	83	11	25	184	19	15	1		896 80

STATEMENT showing Quantity of certain Staple Articles of Canadian Commerce inspected, &c.—*Concluded.*

LEATHER AND HIDES.

Districts.	Hides.				Calf Skins.			Fees.
	1	2	3	Sq. Ft.	1	2	3	
								\$ cts.
Montreal	30,154	6,840	3,872					2,012 83
Quebec	17,367	5,338	792	34,652				1,572 37
Belleville	3,560	492						202 25
Hamilton	19,453	7,830	894		1,884	710		1,538 55
Kingston	8,967	510	557					451 70
Ottawa	6,859	2,415	700					498 70
Toronto	42,172	24,975	5,169					3,613 55
Fredericton	1,488	66						79 05
St. John	8,816	3,234						599 70
Winnipeg	7,660	5,313	1,045		699	440	25	749 76
Hochelaga	31,151	8,216	2,160	5,415				2,135 00
Totals	177,647	65,229	15,189	40,067	2,583	1,150	25	13,453 46

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Commissioner's Report.

APPENDIX B.

STATEMENT of Seizures on account of Illicit Manufactures for Fiscal Year ended 30th June, 1894.

Divisions.	Nos.	Names.	Schedule Value.	Dates.	Remarks.
			\$ cts.		
Hamilton	32	Wm. Carroll	6 20	Jan. 31, 1894.	Fined \$100.
	33	{ R. J. Burk	403 13	April 6, 1894.	do \$100.
St. Catharines		{ J. W. Lang & Co. }		Jan. 9, 1894.	do \$100.
	14	Merriman Bros	1 00	Aug. 18, 1893.	do \$50.
Toronto	308	Moses Robinsitch	5 60	Nov. 6, 1893.	do \$60.
	309	J. L. Hopkins	1 60	Dec. 12, 1893.	do \$5.
	311	Jno. Oag	0 40	Jan. 26, 1894.	do \$5.
	312	H. Mudford	4 28	do 26, 1894.	do \$5.
	313	do	1 00	Mar. 15, 1894.	do \$10.
Joliette	314	H. C. Butterworth	62 60	Nov. 21, 1893.	Tobacco confiscated.
	118	C. S. Huot		do 13, 1893.	Fined \$100.
	2594	J. B. Marcotte		do 13, 1893.	do \$50 and costs; left the country.
	2595	Jos. Desjardins		do 13, 1893.	do \$100.
	2596	O. St. Charles		do 13, 1893.	do \$100 and 3 months' jail; left the country.
Montreal		J. Desjardins		do 13, 1893.	do \$120 and costs.
	2597	O. St. Charles	6 00	do 15, 1893.	Customs deal with prosecution.
	770	A. Teschner	0 45	Dec. 4, 1893.	Confiscation sufficient.
	771	Miss Côté's store	2 60	do 4, 1893.	Paquin fined \$50 and costs.
	772	{ M. Laniel		Feb. 8, 1894.	Fined \$100 and 1 month, and 2 months in default.
		{ H. Paquin	11 40		do \$50 and costs.
	773	A. Heaganton	9 75	Mar. 9, 1894.	do \$100 and 1 month's jail.
	774	Odilon Richot	5 90	do 26, 1894.	do \$10.
	775	A. de Lait	130 65	do 26, 1894.	do \$100 and 1 month's jail.
	776	do	3 60	May 9, 1894.	do \$10.
	777	J. B. Richer	15 00	do 14, 1894.	do \$100 and 1 month's jail.
	778	L. Heneault	6 00	do 15, 1894.	do \$10.
	779	Geo. Croteau	22 05	July 1, 1893.	
	332	Pierre Ouellet & Co.	8 00	do 4, 1893.	do \$100.
	333	C. Chamberland	45 00	do 2, 1893.	do \$100 and costs and 1 month's jail.
334	H. Gauvin	75 00	do 14, 1893.	do \$200.	
335	Amable Joncas	22 50	Aug. 1, 1893.	do \$100 and 1 month's jail, or in default 6 month's jail.	
	336	N. Asselin	12 00	do 10, 1893.	
	337	T. Lachance	5 00	do 15, 1893.	
Quebec	338	Sifroid Simard	18 00	Sept. 19, 1893.	Lepage fined \$100.
	339	{ Anselme Turcotte, jun. }		do 22, 1893.	Fined \$100.
		{ F. X. Lepage	12 00		
	340	Olivier Labbé	12 00	Dec. 11, 1893.	do \$100 and costs.
	341	D. Asselin	7 00	Sept. 14, 1893.	do \$100.
	342	J. Collins			do \$100.
	343	F. Potvin	2 50	Jan. 10, 1894.	do \$25, proceedings may stop on payment of.
		X. Emond		do 10, 1894.	
		N. Coulombe	10 00	do 10, 1894.	
		M. Lafamme	6 00	do 10, 1894.	
Sherbrooke	344	Cyprien Jean	5 50	do 10, 1894.	
	345	E. Bernier	21 50	April 12, 1894.	
	346	P. Duchesneau	3,098 40	Aug. 22, 1893.	
	347	Jos. Jobin	0 50	Sept. 14, 1893.	do \$10.
	93	C. J. O'Dell	0 50	Sept. 14, 1893.	do \$50.
	94	F. Laroche	0 60	Dec. 18, 1893.	do \$50.
	95	A. W. Parker	0 50	May 22, 1894.	do \$50.
	96	Parker & Knight	1 80	June 15, 1894.	do \$50.
Sorel	97	V. Paradis & fils		May 2, 1894.	
St. Hyacinthe	60	Jos. Malo	15 00	June 15, 1894.	
	46	E. Hétu			

STATEMENT of Seizures on account of Illicit Manufactures for Fiscal Year ended 30th June, 1894—*Concluded.*

Divisions.	Nos.	Names.	Schedule Value.	Dates.	Remarks.
			\$ cts.		
St. John's	71	Jno. Thompson	2 25	Aug. 7, 1893.	Fined \$50 and costs or 2 months' jail.
	72	Geo. Lavoie	8 60	Oct. 20, 1893.	do \$50.
	73	do	92 00	do 26, 1893.	do \$100.
Terrebonne	74	Archie Gilman	0 40	Nov. 16, 1893.	
	37	N. Bourette	10 40	Jan. 19, 1894.	do \$10.
	38	Noë Binnette	1 25	Mar. 30, 1894.	do \$25.
Three Rivers	39	H. Savard	6 25	April 22, 1894.	
	82	Jos. Vézina	6 00	do 9, 1894.	
Halifax	83	H. Alaric	3 00	do 11, 1894.	
	137	A. L. Doyle & Co.	4 20	Feb. 5, 1894.	
	138	{ H. Marshall { Albert Beckwith }		May 1, 1894.	
St. John	50	H. B. Kerr	8 50	Aug. 15, 1893.	Confiscation sufficient.
	51	T. W. Butler	7 00	do 15, 1893.	
	52	C. McDonald	1 00	do 15, 1893.	Fined \$10.
	53	J. W. McIntee	2 00	do 15, 1893.	do \$10.
Winnipeg	54	W. G. Nelson	1 80	Sept. 24, 1893.	
	40	W. J. Irwin	31 50	Mar. 27, 1894.	do \$600 or 4 months' jail.
	41	J. H. Currie		do 26, 1894.	do \$50.
		Imperial Oil Co.	345 87	April 14, 1894.	

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

APPENDIX 2.

STATEMENT showing the Amount of Excise Revenues collected at each of the undermentioned Outoffices, during the Year ended 30th June, 1894.

Divisions.	Outoffices.	Spirits.	Malt Liquor.	Malt.	Tobacco.	Cigars.	Petroleum.	Manu- factures in bond.	Other Receipts.	Totals.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Belleville	Trenton	4,360 13								4,360 13
	Deseronto			3,639 50						3,639 50
	Paris		50 00	1,590 50		680 70				1,825 20
Brantford	Tilsonburg	7,870 47	50 00	658 00		4,145 35			40 00	12,763 82
	Woodstock.		50 00							50 00
Guelph	Baden	40,010 88			11,053 44	11,780 05	0 10		20 00	62,864 47
	Berhn			7,901 46		1,022 70				9,524 16
	Galt		50 00	2,538 88						2,588 88
New Hamburg	New Hamburg		100 00	3,679 00		3,107 10				6,886 10
	Preston.		100 00							100 00
	Salem		100 00							100 00
Hamilton	Waterloo			11,195 00		2,782 80				14,077 80
	Waterto Distillery.	193,888 11		4,200 00					520 00	198,608 11
	Greensville.			7,314 23						7,314 23
Kingston	Dundas.			26,957 18						26,957 18
	Napanee	8,146 84			3,797 61		46 20			12,050 65
	Petrolia	6,910 99					9,763 25			16,684 24
London.	Sarnia	17,589 05	50 00	1,056 90	14,692 00		64 40			33,583 35
	Serathroy	3,538 13	50 00	4,674 00			0 30			8,262 43
	St. Thomas	9,452 32	50 00	5,613 61	1,493 62	5,562 60	287 60			22,519 75
Owen Sound.	Collingwood	4,004 51			11,083 97					15,148 48
	Kincardine.	1,385 09								1,405 09
	Meaford	3,972 45		4,375 52						3,962 45
Perth	Neustadt.			2,761 36		1,971 00				4,732 36
	Walkerton.									145 22
	Almonte	145 22								145 22
Peterborough.	Arnprior	9,619 66							20 00	9,639 66
	Pembroke	19,716 12	50 00	433 68	11,720 83	2,319 51			80 00	34,320 14
	Renfrew.	8,132 05								8,132 05
Peterborough.	Smith's Falls.						204 10			204 10
	Cobourg	10,900 31	50 00	4,059 90						15,050 21
	Lindsay	5,192 35	50 00	614 95						5,797 30
Port Hope.	Lindsay	3,174 13	50 00	11,378 87			168 00			14,791 00
	Port Hope.									

XXXXIII

APPENDIX ~~2~~—STATEMENT showing the Amount of Excise Revenues collected at each of the undermentioned Outoffices, during the Year ended 30th June, 1894.—*Concluded.*

Division.	Outoffices.	Spirits. \$ cts.	Malt Liquor. \$ cts.	Malt. \$ cts.	Tobacco. \$ cts.	Cigars. \$ cts.	Petroleum. \$ cts.	Manu- factures in bond. \$ cts.	Other Receipts. \$ cts.	Totals. \$ cts.
Prescott.	Brookville.....	8,659 77	50 00	8,047 16		6,286 50	124 70		60 00	23,228 13
	Gananoque.....	5,196 38							40 00	5,236 38
	Niagara Falls.....					485 90				485 90
St. Catharines	Port Colborne.....		50 00	4,224 25						4,274 25
	Thorold.....	96 05					0 10			96 15
	Welland.....	2,022 14					112 20		20 07	2,154 34
Stratford	Goderich.....	4,362 46		748 00					170 00	5,280 46
	Listowel.....		50 00	1,664 50						5,888 50
	Palmerston.....			36,279 46						36,279 46
Toronto	St. Mary's.....	1,849 75	100 00	6,462 75	3,335 75	945 30	8 00		20 00	5,205 50
	Barrie.....	4,892 56	50 00	4,487 02					20 00	12,428 61
	Hornby.....		50 00	413 32						4,537 02
Windsor.	Ornilha.....						1 00			464 32
	Whitby.....	7,869 91					71 30			71 30
	Chatham.....				4,442 52	2,512 44	15 85		60 00	14,900 72
Joliette.	St. Jacques l'Achigan.....				88 50				50 00	148 50
	Gaspé.....				472 00					472 00
	Magdalen Islands.....				165 00					165 00
Quebec.	Paspébiac.....				5,238 76					5,238 76
	Rivière du Loup.....	4,552 21			140 63					4,692 84
	Gaspé.....							32 63		32 63
Sorel.	Contrecoeur.....					20,880 59				20,880 59
	Granby.....				272 00					272 00
	St. John's.....	12,704 18				193 05			20 00	12,996 18
Terrebonne	St. Jérôme.....	9,942 54							20 00	10,155 59
	Victoriaville.....	505 02			1,909 63				20 00	2,434 65
	Bathurst.....				6,922 63				20 00	6,942 63
Chatham, N.B.	Newcastle.....								20 00	20 00
	Audover.....	893 64							20 00	913 64
	Campo Bello.....	3,413 75							40 00	3,453 75
St. John, N.B.	Fredericton.....				22,230 37		105 70		60 00	22,396 07
	Moncton.....				12,845 20		1,094 10		20 00	13,959 30
	Sackville.....				4,331 50		1 49 33		20 00	4,400 83
Cape Breton.	Shediac.....				523 88				20 00	543 88
	Sussex.....				1,869 02				20 00	1,889 02
	St. Stephen.....	1,233 59			4,907 50		104 23		40 00	5 051 73
Woodstock	Woodstock.....								20 00	1,253 59
	North Sydney.....				4,362 50		4 90		20 00	4,387 40

M.M. 114

Inland Revenues—Excise

Halifax.	Amherst	5,652 62	2,808 50	40 00	8,501 12
	Truro	1,362 95	8,898 13	40 00	10,301 08
	Weymouth		3,020 00	20 00	3,040 00
	Yarmouth		13,081 02	40 00	13,915 22
	Antigonish		5,554 00	40 00	5,594 00
	New Glasgow		810 00	10 00	820 00
	Brandon		8,485 75	110 00	23,213 81
	Calgary	3,732 95	69 38	170 00	8,627 55
	Grétna			20 00	2,757 68
	Lethbridge			860 00	4,923 69
	MacLeod			35 00	550 74
	Prince Albert		87 75	20 00	1,095 36
	Portage la Prairie			140 00	10,704 17
	Kamloops	977 36	2,548 00	20 00	7,022 02
	Kaslo	50 00	913 50	20 00	1,165 25
	Nelson	10,792 59	100 00	60 00	11,867 34
	New Westminster	2,774 53	48 20	92 00	7,636 33
	Revelstoke	1,678 96	1,836 30	20 00	1,798 96
	Vernon	50 00		20 00	340 00
	Nanaimo	3,542 42	270 00	20 00	15,862 45
		150 00	9,196 83	60 00	
	Totals	191,088 17	100,911 38	2,777 00	468,442 67
				176 23	
				2,540 86	
				45,756 04	
				124,092 99	
				2,631 00	
				15 25	
				5 55	
				202 50	
				2,545 15	
				143 60	

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

FINANCIAL RETURNS, 1893-94

Dr.

No. 1.—GENERAL REVENUE ACCOUNT, 1893-4.

Cr.

Inland Revenues—Excise.

Memo. of Refunds deducted below.	Amounts deposited to the credit of the Receiver General.	Authorized Abate-ments.	Balances due 30th June, 1894.	Totals.	Services.	Revenues of previous years not collected 1st July, 1893.	Revenues accrued, 1893-94.	Totals.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
83,498 11	8,366,746 85		24,389 99	8,391,136 84	Excise and Seizures, per Statement No. 3.	38,568 44	8,352,568 40	8,391,136 84
	3,566 00		27,823 17	31,389 17	Hydraulic and other Rents, per Statement No. 5.	27,628 17	3,761 00	31,389 17
	1,986 00		13,838 41	15,824 41	Minor Public Works, per Statement No. 6.	13,453 41	2,371 00	15,824 41
	12,066 24	11 49	38,912 06	50,989 79	Culling timber, per Statement No. 7.	38,939 65	11,990 14	50,989 79
	38,631 52		2,617 06	41,248 58	Weights and Measures, per Statements Nos. 19 (A) and 19 (B).	4,009 80		41,248 58
	16,558 94		864 25	17,423 19	Gas Inspection, per Statement No. 20.	1,406 94	37,238 78	17,423 19
	4,190 29		45 04	4,190 29	Law Stamps, per Statements Nos. 10 and 18.		4,190 29	4,190 29
	963 95			45 04	Bill Stamps, per Statement No. 9.	45 04		45 04
	12,396 28			963 95	Sundry Minor Revenues, per Statement No. 11.		963 95	963 95
				12,396 28	Methylated Spirits, net receipts.		12,396 28	12,396 28
83,498 11	8,457,106 07			8,565,607 54	Less—Refunds as per Statement No. 16.		8,441,496 09	8,565,607 54
	83,498 11			83,498 11			83,498 11	83,498 11
	8,373,607 96	11 49	108,489 98	8,482,109 43	Totals.	124,111 45	8,357,997 98	8,482,109 43

E. MIALI,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

DR.

No. 1.—GENERAL EXPENDITURE

Amounts due to Collectors, &c., 1st July, 1893.	EXPENDITURES AUTHORIZED BY DEPARTMENT.					Amounts due by Collectors, &c., 30th June, 1894.	Totals.
	Salaries.	Contingencies.	Seizures.	Cullers' Fees.	Cullers' Annuities.		
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
49 08	303,671 06	92,624 24	272 05	.....	.....	393 98	397,010 41
.....	8,450 00	3,094 52	.....	7,769 98	5,966 68	75 00	25,356 18
.....	.....	.....	5,335 45	.....	.....	.....	5,335 45
.....	9,181 19	17,143 76	.....	.....	.....	.....	26,324 95
.....	43,126 64	6,762 59	.....	.....	.....	16 66	49,905 89
57 50	56,914 40	16,446 78	37 20	.....	.....	193 26	73,649 14
0 08	14,531 84	7,243 47	.....	.....	.....	212 88	21,988 27
106 66	435,875 13	143,315 36	5,644 70	7,769 98	5,966 68	891 78	599,570 29

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

ACCOUNT, 1893-94.

CR.

SERVICES.	Amounts due by Collectors, &c., 1st July, 1893.	Amounts disbursed by the Receiver (General on requisition of the Department.	AMOUNTS DEDUCTED FROM SALARIES FOR		Amounts due to Collectors, &c., 30th June, 1894.	Totals.
			Super-annuation.	Insurance.		
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Excise and Seizures, per Statement No. 4	393 98	390,555 12	5,994 29	17 94	49 08	397,010 41
Culling Timber, per Statement No. 8.....	75 00	25,124 86	156 32			25,356 18
Excise Seizures distributed, per Statement No. 4, Appendix B.		5,335 45				5,335 45
Sundry Minor Expenditures, per Statement No. 12..		26,141 31	183 64			26,324 95
Departmental Expenditure, per Statement No. 17	16 66	49,173 29	715 94			49,905 89
Weights and Measures, per Statements Nos. 21 (A) and 21 (B).....	301 36	72,182 89	1,103 59	61 30		73,649 14
Gas Inspection, per Statement No. 22	360 47	21,338 20	289 60			21,988 27
..... Totals	1,147 47	589,851 12	8,443 38	79 24	49 08	599,570 29

E. MIALL,
Commissioner.

EXCISE,
No. 3.—COLLECTION Divisions,
(For Details, see

DR.

Balances due 1st July, 1893.	AMOUNTS ACCRUED DURING THE YEAR, INCLUDING LICENSE FEES.							
	Spirits.	Malt Liquor.	Malt.	Tobacco.	Cigars.	Petroleum Inspection Fees.	Bonded Manufactures.	Seizures.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
592 03	70,752 05	75 00	5,512 52	9,401 13	776 70	175 90		
216 82	21,938 68	150 00	8,461 44	14,420 97	19,382 25	4 50		
	9,414 56			2,691 26		12 30		
614 99	243,880 24	500 00	78,443 89	12,165 65	20,156 25	0 10		
2,637 04	195,933 07	150 00	55,714 79	269,591 28	25,312 25	1,190 70	5,884 10	200 00
349 42	57,339 42	100 00	20,233 30	26,564 25	18,443 40	1,727 70	1,794 38	2 13
2,147 73	84,455 72	300 00	82,104 85	68,331 55	135,185 37	12,513 30		
	181,786 06	200 00	5,728 08	53,551 01	2,842 80	2,114 30		25 00
	17,965 53	350 00	14,631 08	13,694 39	4,823 70	0 70		
3 04	60,878 11	50 00	433 68	11,720 83	2,319 51	204 10		
12 50	38,204 45	150 00	20,022 40	2,278 00	1,406 10	778 20		
	10,060 94	50 00	365 82	2,245 64		141 23		
414 86	75,412 76	150 00	38,043 53		6,286 50	132 45	300 00	25 00
739 93	23,014 92	100 00	14,722 50	3,780 38	10,249 35	145 70		100 00
1,476 06	30,167 93	275 00	40,559 01	5,989 63	6,959 94	353 46		
1,996 60	582,959 48	675 00	210,511 41	285,805 13	38,843 55	5,651 40	15,441 49	138 41
2,344 38	323,582 96	156 60	37,268 73	9,141 15	8,277 54	222 38	116 80	
430 23								
13,975 13	2,027,746 88	3,431 60	632,757 03	791,372 25	301,265 21	25,368 42	23,536 77	490 54
	20,396 37	50 00	518 81	8,545 05				200 00
9,035 39	944,064 46	425 00	164,705 28	882,122 67	300,194 24	6,427 51	11,034 13	701 92
1,677 52	316,702 39	100 00	32,494 16	162,901 36	11,529 54	49 50	2,712 93	1,111 82
2,297 80	91,987 18	50 00	1,590 96	9,294 38	21,618 14		300 00	200 60
186 30	25,998 31			710 85			57 63	14 39
	43,207 67	50 00						25 00
	29,245 25			2 00	20,850 99			274 28
	13,347 87	50 00		1,496 75			50 00	137 00
1,238 13	57,540 15			1,447 10	4,088 51	105 70		12 00
14,435 14	1,542,489 65	725 00	199,309 21	1,066,520 16	358,281 42	6,582 71	14,154 69	2,677 01
	505 02			8,832 26				23 00
1,297 32	125,698 72	100 00	19,492 92	122,319 29	11,333 34	3,490 03		10 00
1,297 32	126,203 74	100 00	19,492 92	131,151 55	11,333 34	3,490 03		33 00
	95,686 62	250 00	38,359 74	4,362 50		4 90		
810 33				168,049 75	4,122 60	1,601 95		10 00
5,860 50				17,911 50		106 40		
6,670 83	95,686 62	250 00	38,359 74	190,323 75	4,122 60	1,713 25		10 00
739 08	5,772 77	50 00	1,390 06	45,401 50		370 00		
572 50	209,099 90	425 00	29,255 20	164,362 61	9,309 90	1,298 50		75 00
72 00	52,536 15	600 00	9,735 05	27,019 49	5,688 00	1,133 15		
806 44	74,102 05	543 60	26,391 53	32,805 68	10,534 05	1,312 33		
878 44	126,638 20	1,143 60	36,126 58	59,825 17	16,222 05	2,445 98		
38,568 44	4,133,637 76	6,125 20	956,690 74	2,448,956 99	700,534 52	41,268 89	37,691 46	3,285 55
	16,479 39	49 12	60,715 93	6,128 34	62 73	37 60		25 00
	4,117,158 37	6,076 08	895,974 81	2,442,828 65	700,471 79	41,231 29	37,691 46	3,260 55

INLAND REVENUE DEPARTMENT, OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

1898-4.

in Account with Revenue.

Appendix A.)

CR.

Other Receipts.	Total Duties Accrued.	TOTAL DEBITS.	Divisions.	Deposited to the Credit of the Receiver General.	Balances due 30th June 1894.	TOTAL CREDITS.
\$ cts.	\$ cts.	\$ cts.		\$ cts.	\$ cts.	\$ cts.
140 00	86,833 30	87,425 33	Belleville.....	87,266 78	158 55	87,425 33
80 60	64,438 44	64,655 26	Brantford.....	64,435 01	220 25	64,655 26
80 00	12,198 12	12,198 12	Cornwall.....	12,198 12		12,198 12
580 90	355,726 43	356,341 42	Guelph.....	356,183 62	157 80	356,341 42
1,233 97	555,210 16	557,847 20	Hamilton.....	556,881 58	965 62	557,847 20
617 97	126,822 55	127,171 97	Kingston.....	126,969 63	212 34	127,171 97
371 30	383,262 09	385,409 82	London.....	384,230 82	1,179 00	385,409 82
120 00	246,367 25	246,367 25	Ottawa.....	246,367 25		246,367 25
160 00	51,625 40	51,625 40	Owen Sound.....	51,296 00	329 40	51,625 40
100 00	75,706 23	75,709 27	Perth.....	75,676 87	32 40	75,709 27
160 00	62,999 15	63,011 65	Peterborough.....	63,011 65		63,011 65
135 00	12,998 63	12,998 63	Port Arthur.....	12,998 63		12,998 63
342 50	120,692 74	121,107 10	Prescott.....	121,022 72	84 38	121,107 10
100 00	52,212 85	52,952 78	St. Catharines.....	52,922 18	30 60	52,952 78
120 00	84,424 97	85,901 03	Stratford.....	85,368 99	532 04	85,901 03
4,113 25	1,144,139 12	1,146,135 72	Toronto.....	1,144,861 21	1,284 51	1,146,135 72
8,547 03	387,313 19	389,657 57	Windsor.....	387,794 23	1,863 34	389,657 57
		430 23	Suspense Account.....		430 23	430 23
17,091 92	3,822,970 62	3,836,945 75	<i>Ontario.</i>	3,829,465 29	7,480 46	3,836,945 75
40 00	29,750 23	29,750 23	Joliette.....	29,750 23		29,750 23
3,564 12	2,313,239 33	2,322,274 72	Montreal.....	2,315,162 31	7,112 41	2,322,274 72
1,060 00	528,661 70	530,339 22	Quebec.....	529,310 53	1,028 69	530,339 22
116 25	125,157 51	127,455 31	Sherbrooke.....	127,419 31	36 00	127,455 31
160 00	26,941 18	27,127 48	Sorel.....	27,117 37	10 11	27,127 48
40 00	43,322 67	43,322 67	St. Hyacinthe.....	43,322 67		43,322 67
60 00	50,432 52	50,432 52	St. John's.....	50,432 52		50,432 52
20 00	15,101 62	15,101 62	Terrebonne.....	15,101 62		15,101 62
80 00	63,273 46	64,511 59	Three Rivers.....	64,207 30	304 29	64,511 59
5,140 37	3,195,880 22	3,210,315 36	<i>Quebec</i>	3,201,623 86	8,491 50	3,210,315 36
40 00	9,400 28	9,400 28	Chatham.....	9,400 28		9,400 28
500 00	282,944 90	284,241 62	St. John.....	283,157 50	1,084 12	284,241 62
540 00	292,344 58	293,641 90	<i>New Brunswick.</i>	292,557 78	1,084 12	293,641 90
20 00	4,387 40	4,387 40	Cape Breton.....	4,387 40		4,387 40
435 00	308,515 66	309,325 99	Halifax.....	309,182 57	143 32	309,325 99
50 00	18,067 90	18,067 90	Pictou.....	18,067 90		18,067 90
		5,860 50	Suspense Account.....		5,860 50	5,860 50
505 00	330,970 96	337,641 79	<i>Nova Scotia</i>	331,637 97	6,003 82	337,641 79
40 00	53,024 33	53,763 41	Charlottetown, P.E.I.....	53,763 41		53,763 41
600 00	414,426 11	414,998 61	Winnipeg, Man.....	414,501 56	497 05	414,998 61
340 00	97,051 84	97,123 84	Vancouver.....	96,655 47	468 37	97,123 84
210 00	145,899 74	145,706 18	Victoria.....	145,841 51	364 67	145,706 18
550 00	242,951 58	243,830 02	<i>British Columbia.</i>	242,996 98	833 04	243,830 02
24,377 29	8,352,568 40	8,391,136 84	Totals.....	8,366,746 85	24,389 99	8,391,136 84
	83,498 11		Less—Refunds as per Statement No. 16.			
24,377 29	8,269,070 29		Net Revenue.			

E. MIALI, Commissioner.

EXCISE,

No. 4.—COLLECTION Divisions

(For Details, see

DR.

Balances due by Collectors, 1st July, 1893.	Amounts received from Department to meet Expenditure.	DEDUCTION FROM SALARIES FOR		Balances due to Collectors, 30th June, 1894.	Totals.	Divisions.
		Super-annuation.	In-surance.			
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	
43 98	6,309 95	120 13			6,474 06	Belleville.....
	5,666 83	104 35			5,771 18	Brantford.....
	967 75	18 00			985 75	Cornwall.....
	14,893 53	281 39			15,174 92	Guelph.....
	20,174 78	389 54			20,564 32	Hamilton.....
	9,536 16	177 88			9,714 04	Kingston.....
	17,737 60	345 98			18,083 58	London.....
	5,880 55	116 27			5,996 82	Ottawa.....
	3,966 67	64 42			4,031 09	Owen Sound.....
	5,116 05	69 66			5,185 71	Perth.....
	4,483 29	85 84			4,569 13	Peterborough.....
	1,082 58	20 00			1,102 58	Port Arthur.....
	10,695 45	209 11			10,904 56	Prescott.....
	6,914 16	125 13			7,039 29	Stratford.....
	4,607 11	84 92			4,692 03	St. Catharines.....
	37,979 18	752 93			38,732 11	Toronto.....
	18,894 80	372 70		49 08	19,316 58	Windsor.....
	8,965 33	148 00			9,113 33	District Inspectors.....
43 98	183,871 77	3,486 25		49 08	187,451 08	Ontario.....
	2,039 48	36 88			2,076 36	Joliette.....
	44,238 74	805 48	17 94		45,062 16	Montreal.....
	10,774 33	190 33			10,964 66	Quebec.....
	2,910 35	25 20			2,935 55	Sherbrooke.....
	947 97	17 50			965 47	Sorel.....
	1,170 24	20 00			1,190 24	St. Hyacinthe.....
	2,220 80	35 56			2,256 36	St. John's.....
	1,080 68	16 44			1,097 12	Terrebonne.....
	2,136 00	37 96			2,173 96	Three Rivers.....
	5,037 90	44 00			5,081 90	District Inspectors.....
	72,556 49	1,229 35	17 94		73,803 78	Quebec.....
	1,242 26	24 00			1,266 26	Chatham.....
	8,628 04	162 16			8,790 20	St. John.....
	2,271 62	38 00			2,309 62	District Inspector.....
	12,141 92	224 16			12,366 08	New Brunswick.....
	819 97	15 00			834 97	Cape Breton.....
	11,778 90	224 47			12,003 37	Halifax.....
	1,085 41	20 00			1,105 41	Pictou.....
	2,883 72	48 00			2,931 72	District Inspector.....
	16,568 00	307 47			16,875 47	Nova Scotia.....
100 00	2,253 55	49 96			2,397 51	Charlottetown, P. E. I.....
200 00	15,534 78	258 95			15,993 73	Winnipeg.....
	4,867 90	50 00			4,917 90	District Inspector.....
200 00	20,402 68	308 95			20,911 63	Manitoba.....

Inland Revenues—Excise.

1893-94.

in Account with Expenditure.

Appendix B.)

CR.

Balances due to Collectors, 1st July, 1893.	EXPENDITURE AUTHORIZED BY THE DEPARTMENT.						Balances due by Collectors, 30th June, 1894.	Totals.
	Salaries.	Seizures' Expenditure.	Special Assistance	Rent.	Traveling Expenses.	Sundries.		
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
	6,006 25			50 00	223 80	200 03	43 98	6,474 06
	5,223 06				265 40	232 72		5,771 18
	900 00					85 75		985 75
	14,015 00			48 00	531 15	580 77		15,174 92
	19,418 99	2 40	760 72		123 65	258 56		20,564 32
	8,900 00			270 00	38 90	505 14		9,714 04
	17,008 85			200 00	189 44	685 29		18,083 58
	5,817 50				71 45	107 87		5,996 82
	3,225 00			125 00	515 30	137 26		4,031 09
	4,270 38			99 96	187 60	552 77		5,185 71
	4,300 00				40 30	228 83		4,569 13
	1,000 00			40 00	8 30	54 28		1,102 58
	10,457 50				84 50	262 56		10,904 56
	6,262 50			7 00	284 20	199 26		7,039 29
	4,250 00				151 95	110 08		4,692 03
	37,878 49	3 50			351 40	468 72		38,732 11
49 08	18,571 10				286 09	410 31		19,316 58
	7,400 00			99 96	1,403 43	209 89		9,113 33
49 08	174,904 62	5 90	1,460 58	939 92	4,756 91	5,290 09	43 98	187,451 06
	1,960 00	29 43				86 93		2,076 36
	40,701 23	19 45	2,428 22		662 57	1,250 69		45,062 16
	9,134 16	123 56	824 41		346 37	536 16		10,964 66
	1,659 96	10 87	774 05		228 49	262 18		2,985 55
	875 00	3 76			5 50	81 21		965 47
	1,000 00			133 34	1 15	55 75		1,190 24
	1,945 00	25 33		144 00	20 40	121 63		2,256 36
	900 00	26 75		24 00	57 05	89 32		1,097 12
	1,900 00	20 50			168 50	84 96		2,173 96
	4,600 00				415 90	66 00		5,081 90
	64,675 35	259 65	4,026 68	301 34	1,905 93	2,634 83		73,803 78
	1,200 00				7 20	59 06		1,266 26
	8,225 06		150 00		182 67	232 47		8,790 20
	1,900 00				395 69	13 93		2,309 62
	11,325 06		150 00		585 56	305 46		12,366 08
	750 00				39 63	45 34		834 97
	11,413 75				261 54	328 08		12,003 37
	1,000 00				36 41	69 00		1,105 41
	2,400 00				371 87	159 85		2,931 72
	15,563 75				709 45	602 27		16,875 47
	2,200 00			22 50	9 35	65 66	100 00	2,397 51
	12,739 11		730 00	370 00	1,317 00	637 62	200 00	15,993 73
	2,500 00			300 00	2,004 05	113 85		4,917 90
	15,239 11		730 00	670 00	3,321 05	751 47	200 00	20,911 63

EXCISE,

No. 4.—COLLECTION Divisions

(For Details, see

DR.

Balances due by Collectors, 1st July, 1893.	Amounts received from Department to meet Expenditure.	DEDUCTIONS FROM SALARIES FOR		Balances due to Collectors, 30th June, 1894.	Totals.	Divisions.
		Super-annuation.	In-surance.			
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	
	5,776 88	87 02			5,863 90	Vancouver.....
	5,249 99	76 96			5,326 95	Victoria.....
	3,139 85	50 00			3,189 85	District Inspector
	14,166 72	213 98			14,380 70	.....British Columbia.....
	3,641 14	56 00			3,697 14	Inspector of Distilleries
	2,836 01	56 00			2,892 01	Chief Inspector of Inland Revenue
	67 05				67 05	Inspector of Tobacco Factories
	257 35				257 35	do of Bonded Factories
	32,020 59				32,020 59	General Expenditure.....
	2,410 05				2,410 05	Legal Expenses.....
	4,970 79				4,970 79	Printing.....
	910 95				910 95	Stationery.....
	1,197 50				1,197 50	Lithographing, Engraving, &c
50 00	9,423 36	68 17			9,541 53	Preventive Service.....
	4,856 30				4,856 30	Commission to Customs Officers
	100 43				100 43	Commission on sale of Stamps for Canada Twist.....
	5,902 47				5,902 47	Duty Pay to Officers in charge of most important establishments
393 98	390,555 12	5,994 29	17 94	49 08	397,010 41	.....Grand Totals.....

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

1893-94.

in Account with Expenditure—Continued.

Appendix B.)

CR.

Balances due to Collectors, 1st July, 1893.	EXPENDITURE AUTHORIZED BY THE DEPARTMENT.						Balances due by Collectors, 30th June, 1894.	Totals.
	Salaries.	Seizures' Expendi- ture.	Special Assistance	Rent.	Travel- ling Expenses.	Sundries.		
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
	4,213 17		512 44	225 00	459 75	453 54		5,863 90
	3,850 00	6 50	1,005 95	120 00	132 75	211 75		5,326 95
	2,500 00				680 35	9 50		3,189 85
	10,563 17	6 50	1,518 39	345 00	1,272 85	674 79		14,380 70
					834 00	63 14		3,697 14
	2,800 00				88 20	3 81		2,892 01
	2,800 00				32 05	35 00		67 05
					267 35			267 35
						32,020 59		32,020 59
						2,410 05		2,410 05
						4,970 79		4,970 79
						910 95		910 95
						1,197 50		1,197 50
	3,600 00		2,795 02		1,904 09	1,192 42	50 00	9,541 53
						4,856 30		4,856 30
						100 43		100 43
						5,902 47		5,902 47
49 08	303,671 06	272 05	10,680 67	2,278 76	15,676 79	63,988 02	393 98	397,010 41

E. MIALL,
Commissioner.

HYDRAULIC AND OTHER RENTS.
No. 5.—SUMMARY STATEMENT OF LESSEES' ACCOUNTS, 1893-94.

CR.

(For Details see Appendix A.)

DR.

Balances due 1st July, 1893.	Accrued during the Year ended 30th June, 1894.	Refund.	Totals.	Deposited to the Credit of the Receiver General.	Balances due 30th June, 1894.	Totals.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
2,267 84	3,299 00		5,566 84	3,359 00	2,207 84	5,566 84
262 00	95 00		357 00	26 00	26 00	26 00
20 00	386 00	1 00	649 00	142 00	507 00	649 00
30 00	40 00		70 00	40 00	30 00	60 00
	10 00		40 00	3	40 00	40 00
Land Sales.						
			15,573 50		15,573 50	15,573 50
			9,474 83		9,474 83	9,474 83
		1 00	31,390 17	3,567 00	27,823 17	31,390 17
27,628 17	3,761 00	1 00	31,390 17	3,567 00	27,823 17	31,390 17

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

DR.

No. 6.—MINOR PUBLIC WORKS, 1893-94.

CR.

Balances due 1st July, 1893.	Accrued during year ended 30th June, 1894.	Totals.	Works.	Deposited to credit of Receiver General.	Balances due 30th June, 1894.	Totals.
\$ cts.	\$ cts.	\$ cts.	<i>Bridges.</i>	\$ cts.	\$ cts.	\$ cts.
2,600 62		2,600 62	Dunnville		2,600 62	2,600 62
			<i>Ferries.</i>			
20 00	10 00	30 00	Bristol		30 00	30 00
	20 00	20 00	Buckingham and Cumberland	20 00		20 00
50 00	50 00	100 00	Buffalo and Navy Island	50 00	50 00	100 00
	25 00	25 00	Buffalo and Point Albinot	25 00		25 00
50 00	50 00	100 00	Buffalo to point near Point Albinot		100 00	100 00
	50 00	50 00	Buffalo and Shisler's Point		50 00	50 00
	10 00	10 00	Cardinal and Ogdensburg		10 00	10 00
	50 00	50 00	Chippewa and Schlosser's Landing	50 00		50 00
	10 00	10 00	Cross Point and Campbellton	10 00		10 00
10 00	10 00	20 00	Edmunston and Maine		20 00	20 00
10 00		10 00	Fitzroy and Onslow (old lease)	10 00		10 00
	50 00	50 00	Fitzroy and Onslow (new lease)	50 00		50 00
	100 00	100 00	Fort Erie and Buffalo	100 00		100 00
	20 00	20 00	Gower Point and Lapasse	20 00		20 00
1,736 79		1,736 79	Hull (old lease)		1,736 79	1,736 79
	100 00	100 00	Hull (new lease)	100 00		100 00
	20 00	20 00	Morrisburg and Waddington	20 00		20 00
75 00	75 00	150 00	New Edinburgh and Gatineau	150 00		150 00
	1 00	1 00	Ouellette Street, Detroit	1 00		1 00
	12 00	12 00	Papineauville and Brown's Wharf	12 00		12 00
1 00		1 00	Pembroke and Allumette Island (old lease)		1 00	1 00
	51 00	51 00	Pembroke and Allumette Island (new lease)	51 00		51 00
	200 00	200 00	Prescott and Ogdensburg	200 00		200 00
	10 00	10 00	Queenston	10 00		10 00
	100 00	100 00	Queenston and Lewiston	50 00	50 00	100 00
	50 00	50 00	Rockcliffe and Gatineau	50 00		50 00
50 00	100 00	150 00	Sault Ste. Marie	100 00	50 00	150 00
10 00	10 00	20 00	St. Leonard and Van Buren	10 00		20 00
	10 00	10 00	Thurso and Clarence		50 00	50 00
	50 00	50 00	Victoria and Black Rock			50 00
			<i>Sundries.</i>			
8,000 00		8,000 00	Dundas and Waterloo Road		8,000 00	8,000 00
840 00	840 00	1,682 00	Government Telegraph Lines	842 00	840 00	1,682 00
	260 00	260 00	Part of Building, Portland, N.B.	130 00	130 00	260 00
	25 00	25 00	Warton Docks	25 00		25 00
13,453 41	2,371 00	15,824 41	Totals	1,986 00	13,838 41	15,824 41

E. MIALI,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

No. 7—CULLERS' REVENUE, 1893-94.
(For Details, see Appendix A.)

CR.

DE.

Balances due 1st July, 1893.	Amounts accrued for Measuring and Culling Timber during the Year ended 30th June, 1894.	Totals.	Offices.	Rebate.	Deposited to the Credit of the Receiver General.	Balances due 30th June, 1894.	Totals.
\$ cts.	\$ cts.	\$ cts.		\$ cts.	\$ cts.	\$ cts.	\$ cts.
7,273 39	457 48	7,730 87	.....Montreal.....	.....	116 47	7,614 40	7,730 87
30,997 92	11,447 46	42,445 38	.....Quebec.....	11 49	11,766 57	30,677 32	42,445 38
438 57	85 20	523 77	.....Three Rivers.....	.....	193 20	330 57	523 77
289 77	.....	289 77	.....M. A. Plamondon.....	.....	.....	289 77	289 77
38,999 65	11,990 14	50,989 79	.....Totals.....	11 49	12,066 24	38,912 06	50,989 79

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

No. 8.—CULLERS' EXPENDITURE, 1893-94.

DR.

(For Details, see Appendix B.)

CR.

Balances due by sundry persons, 1st July, 1893.	Received from Department to meet expenditure.	Deducted from Salaries for Super-annuation.	Totals.	AUTHORIZED EXPENDITURE.				Balances due by sundry persons, 1st July, 1893.	Totale.
				Salaries.	Con-tingencies.	Cullers' Fees.	Annuities.		
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
75 00	16,503 39	123 28	16,631 67	6,750 00	2,569 17	7,312 50	.....	.....	16,631 67
.....	1,624 79	18 00	1,717 79	990 00	285 31	457 48	.....	75 00	1,717 79
.....	920 46	10 04	930 50	800 00	130 50	.....	.....	.....	930 50
.....	5,966 68	.....	5,966 68	.....	.....	.....	5,966 68	.....	5,966 68
.....	87 70	.....	87 70	.....	87 70	.....	.....	.....	87 70
.....	21 84	.....	21 84	.....	21 84	.....	.....	.....	21 84
75 00	25,124 86	156 32	23,356 18	8,450 00	3,094 52	7,769 98	5,966 68	75 00	25,356 18
			Totals.....						

E. MIALI,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

BILL STAMPS, 1893-94.

DR. No. 9.—**BILL STAMPS Distributors in Account with the Inland Revenue Department.** **CR.**

BALANCES, 1ST JULY, 1893.		BALANCES, 30TH JUNE, 1894.	
Stamps on hand.	Cash on hand.	Stamps on hand.	Cash on hand.
\$ cts.	\$ cts.	\$ cts.	\$ cts.
1,372 77	11 54	1,372 77	11 54
160 00	33 50	160 00	33 50
1,532 77	45 04	1,532 77	45 04
Totals.		Totals.	
\$ cts.		\$ cts.	
1,372 77		1,372 77	
11 54		11 54	
33 50		33 50	
160 00		160 00	
1,577 81		1,577 81	
Totals.		Totals.	
\$ cts.		\$ cts.	
1,372 77		1,372 77	
11 54		11 54	
33 50		33 50	
160 00		160 00	
1,577 81		1,577 81	

LAW STAMPS, 1893-94.

DR. No. 10.—**LAW STAMPS Distributors in Account with the Inland Revenue Department.** **CR.**

BALANCES, 1ST JULY, 1893.		BALANCES, 30TH JUNE, 1894.	
Stamps on hand.	Cash on hand.	Stamps on hand.	Cash on hand.
\$ cts.	\$ cts.	\$ cts.	\$ cts.
2,080 00	2,329 25	1,977 50	2,080 00
2,329 25	4,409 25	2,212 79	2,329 25
4,409 25	4,409 25	4,190 29	4,409 25
Totals.		Totals.	
\$ cts.		\$ cts.	
2,080 00		1,977 50	
2,329 25		2,212 79	
4,409 25		4,190 29	

INLAND REVENUE DEPARTMENT, OTTAWA, 20th September, 1894.

E. MIALI, Commissioner.

Inland Revenues—Excise.

DR. No. 11.—SUNDRY MINOR REVENUES, 1898-94. CR.

Accrued during the year ended 30th June, 1894.	Totals.		Deposited to the credit of the Receiver General.	Totals.
\$ cts.	\$ cts.		\$ cts.	\$ cts.
279 00	279 00	Fertilizers' Inspection Fees	279 00	279 00
465 86	465 86	.. Adulteration of Food Fees	465 86	465 86
207 39	207 39	.. Liquor License Act	207 39	207 39
11 70	11 70	.. Casual Revenue	11 70	11 70
962 95	962 95	..... Totals	962 95	962 95

No. 12.—SUNDRY MINOR EXPENDITURES, 1893-94.

DR. (For Details see Appendix B.) CR.

Amounts received from Department to meet expenditure.	Deduction from salaries for super-annuation.	Totals.		Salaries.	Contingencies.	Printing.	Stationery.	Totals.
\$ cts.	\$ cts.	\$ cts.		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
110 22	.....	110 22	Minor Public Works		110 22	.....	.....	110 22
2,208 06	.....	2,208 06	.. Inspection of Staples		2,165 08	43 03	.....	2,208 06
23,823 03	183 64	24,006 67	.. Adulteration of Food	9,181 19	14,342 10	344 69	138 69	24,006 67
26,141 31	183 64	26,324 95	..... Totals	9,181 19	16,617 35	387 72	138 69	26,324 95

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

No. 13.—STATEMENT showing the quantities of the several articles subject to 1892, 1893, and 1894, and

ARTICLES SUBJECT TO EXCISE DUTY.	1892.			Duty. \$ cts.
	QUANTITIES.			
	Ex-Manu- factory.	Ex-Ware- house.	Totals.	
	Gallons.	Gallons.	Gallons.	
Spirits	33,038	2,545,935 46,270 imported	2,625,243	3,873,801 55
Malt Liquor, the duty being paid on Malt	16,946,245		16,946,245	330 90
	Lbs.	Lbs.	Lbs.	
Malt	517,231	45,908,651	46,425,882	928,517 64
	No.	No.	No.	
Cigars	62,499,833	42,021,660	104,521,493	623,952 22
Cigarettes	20,359,700	19,787,500	40,147,200	62,933 80
	Lbs.	Lbs.	Lbs.	
Tobacco from Foreign Leaf	955,044	8,194,978	9,150,022	2,287,506 18
do Canadian Leaf	252,784	143,595	396,379	19,819 45
Snuff	252,760		252,760	45,827 00
Canadian Twist	72,583		72,583	3,629 20
Raw Leaf Tobacco, Foreign		422	422	122 65
	1,533,171	8,338,995	9,872,166	2,356,904 48
Inspection Fees on Petroleum				43,503 38
Manufactures in Bond				37,387 92
Licenses, Spirits				2,875 00
do Malt Liquor				6,575 00
do Malt				7,150 00
do Cigars				10,225 00
do Tobacco				2,155 00
do Manufactures in Bond				950 00
Totals				7,957,261 89

DEPARTMENT OF INLAND REVENUE,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

Excise Duty taken for Consumption, during the years ended 30th June, the Duty accrued thereon.

1893.				1894.			
QUANTITIES.			Duty.	QUANTITIES.			Duty.
Ex-Manu- factory.	Ex-Ware- house.	Totals.		Ex-Manu- factory.	Ex-Ware- house.	Totals.	
Gallons.	Gallons.	Gallons.	\$ cts.	Gallons.	Gallons.	Gallons.	\$ cts.
15,701	2,731,896	2,819,414	4,139,306 78	1,206	2,753,401	2,799,416	4,131,387 76
17,175,356	71,817 imported	17,175,356	428 70	18,299,636	44,809 imported.	18,299,636	150 20
Lbs.	Lbs.	Lbs.		Lbs.	Lbs.	Lbs.	
84,074	49,998,677	50,082,751	1,001,655 02	8,078	51,303,128½	51,311,206½	950,815 74
No.	No.	No.		No.	No.	No.	
65,484,904	49,183,905	114,668,809	681,623 31	65,995,537	49,397,320	115,392,857	689,184 52
32,252,100	10,618,000	42,870,100	64,305 15	44,450,560	10,692,940	55,143,500	82,715 25
Lbs.	Lbs.	Lbs.		Lbs.	Lbs.	Lbs.	
1,082,327½	8,150,300	9,232,627½	2,308,156 88	989,859	8,209,120	9,198,979	2,299,744 75
330,501½	106,084	436,585½	21,829 44	281,994	20,842	302,836	15,141 82
251,620	.....	251,620	45,664 50	246,985	.....	246,985	44,809 47
78,427½	.....	78,427½	3,921 38	.....	88,110	88,110	4,405 50
.....	802	802	240 60	.....	174	174	52 20
1,742,876½	8,257,186	10,000,062½	2,379,812 80	1,518,888	8,318,246	9,837,084	2,364,153 74
.....	.....	.....	46,343 07	.....	.....	.....	41,268 89
.....	.....	.....	34,900 21	.....	.....	.....	36,241 46
.....	.....	.....	2,750 00	.....	.....	.....	2,250 00
.....	.....	.....	6,200 00	.....	.....	.....	5,975 00
.....	.....	.....	6,475 00	.....	.....	.....	5,875 00
.....	.....	.....	10,637 50	.....	.....	.....	11,850 00
.....	.....	.....	2,012 00	.....	.....	.....	2,068 00
.....	.....	.....	1,150 00	.....	.....	.....	1,350 00
.....	.....	.....	8,377,004 54	.....	.....	.....	8,324,905 56

E. MIALL,
Commissioner.

No. 14.—Amounts deposited monthly to the Credit of the Honourable the Receiver General, on account of Inland Revenue during the Fiscal Year ended 30th June, 1894.

	Ontario.	Quebec.	New Brunswick.	Nova Scotia.	Prince Edward Island.	Manitoba and North-west.	British Columbia.	Total.
	\$	\$	\$	\$	\$	\$	\$	\$
	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.
JULY :—								
Excise	271,004 86	249,602 79	26,307 12	24,257 29	3,390 22	31,934 61	18,294 61	624,791 50
Excise Seizures	25 00	195 31	.....	.....	.....	.....	.....	220 31
Cullers	651 00	981 99	.....	.....	.....	.....	1 00	981 99
Hydraulic Rents	75 00	1,446 75	174 17	127 05	39 40	42 30	36 00	75 00
Minor Public Works	2,890 89	.....	.....	.....	.....	.....	.....	4,756 56
Weights and Measures	5 00	270 00	26 50	77 00	.....	18 75	19 75	5 00
do Seizures	708 75	24 00	.....	.....	.....	.....	.....	1,120 75
Gas Inspection	84 50	.....	.....	.....	.....	.....	.....	108 50
Other Revenues .....	.....	.....	.....	.....	.....	.....	.....	.....
Totals	275,445 00	252,620 84	26,507 79	24,461 34	3,429 62	31,995 65	18,351 36	632,711 61
AUGUST :—								
Excise	321,603 38	257,224 63	23,907 80	26,374 29	4,060 13	33,991 12	27,832 17	694,993 62
Excise Seizures .....	.....	61 87	.....	.....	.....	.....	.....	61 87
Cullers	25 00	2,425 55	.....	.....	.....	.....	.....	2,425 55
Hydraulic Rents .....	.....	1 00	65 00	.....	.....	.....	11 00	65 00
Minor Public Works	1,534 59	1,335 13	272 56	254 64	49 60	63 30	67 25	3,577 07
Weights and Measures	5 00	.....	.....	.....	.....	5 00	.....	10 00
do Seizures	685 25	163 50	25 00	32 50	.....	.....	.....	906 25
Gas Inspection	33 00	12 00	.....	.....	.....	.....	.....	45 00
Other Revenues .....	.....	.....	.....	.....	.....	.....	.....	.....
Totals	323,881 22	261,228 68	24,270 36	26,661 43	4,109 73	34,059 42	27,910 42	702,121 26
SEPTEMBER :—								
Excise	343,506 05	278,095 53	28,237 89	25,876 44	5,050 65	34,702 73	20,367 18	733,836 47
Excise Seizures .....	.....	410 00	.....	10 00	.....	.....	.....	420 00
Cullers .....	.....	2,383 36	.....	.....	.....	.....	.....	2,383 36
Hydraulic Rents	50 00	.....	5 00	.....	.....	.....	12 00	67 00
Minor Public Works	1,348 43	1,769 71	145 99	398 01	76 75	840 00	98 30	3,912 81
Weights and Measures	852 00	360 75	19 00	35 50	.....	55 62	15 50	1,289 25
Gas Inspection	522 44	.....	.....	18 00	.....	6 50	.....	540 44
Other Revenues .....	.....	.....	.....	.....	.....	.....	.....	.....
Totals	346,278 92	283,039 35	28,407 86	26,337 95	5,127 40	35,604 85	20,492 98	745,289 33

Inland Revenues—Excise.

OCTOBER :—	344,384 08	296,465 42	30,723 79	32,839 78	4,711 58	44,109 36	28,263 21	781,497 22
Excise	200 00	200 00						200 00
Excise Seizures	616 62	616 62					5 00	616 62
Cullers	555 00	20 00						60 00
Hydraulic Rents	3,378 16	1,197 84	177 53	207 40	47 25	25 55	51 10	5,084 83
Minor Public Works	5 00							5 00
Weights and Measures	608 00	409 50	55 50	54 25		12 75	50 50	1,185 50
do Seizures	20 00							20 00
Gas Inspection	180 95							180 95
Gas Penalty								
Other Revenues								
Totals	349,186 19	298,909 38	30,956 82	33,101 43	4,758 83	44,147 66	28,369 81	789,430 12
NOVEMBER :—								
Excise	360,066 02	318,750 19	30,243 95	34,731 78	6,391 40	43,407 57	20,801 56	814,392 47
Excise Seizures	50 00	250 00	10 00					310 00
Cullers		213 76					1 00	213 76
Hydraulic Rents	1 00	1 00	65 00					2 00
Minor Public Works								67 00
Weights and Measures	1,481 12	787 77	74 06	324 30	50 05	103 56	32 00	2,852 88
Gas Inspection	683 50	340 25	33 50	14 00		33 25		1,104 50
Other Revenues	560 11							560 11
Totals	362,841 75	320,342 97	30,426 51	35,070 08	6,441 45	43,544 40	20,835 56	819,502 72
DECEMBER :—								
Excise	336,655 69	313,294 84	24,866 85	34,873 15	4,477 08	35,877 86	18,546 31	768,591 78
Excise Seizures		262 68	23 00					285 68
Cullers		699 71					25 00	699 71
Hydraulic Rents	375 00							400 00
Minor Public Works	300 00							300 00
Weights and Measures	956 93	469 29	134 84	103 41	11 35	40 45	27 05	1,733 32
Gas Inspection	745 25	501 75	16 50	28 50	10 00	10 25		1,312 25
Other Revenues	223 45							223 45
Totals	389,256 32	315,218 27	25,041 19	35,005 05	4,498 43	35,928 56	18,598 36	773,546 19
JANUARY :—								
Excise	304,413 69	244,867 32	20,678 71	24,639 34	3,859 65	27,425 95	19,900 19	645,785 85
Excise Seizures	102 80	770 09						872 89
Hydraulic Rents	151 00							151 00
Minor Public Works	25 00							25 00
Weights and Measures	2,411 89	376 38	79 04	24 60	11 15	142 60	9 20	3,054 85
Gas Inspection	906 50	845 44	69 50	74 00	24 25	23 25	21 75	1,964 69
Other Revenues	441 75	82 00	18 00	22 00		8 00		571 75
Totals	308,453 63	246,941 23	20,845 25	24,769 94	3,885 05	27,600 80	19,931 14	652,426 04

No. 14.—AMOUNTS deposited monthly to the Credit of the Honourable the Receiver General, &c.—*Concluded.*

	Ontario.	Quebec.	New Brunswick.	Nova Scotia.	Prince Edward Island.	Manitoba and North-west.	British Columbia.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
FEBRUARY:—								
Excise	206,401 58	220,466 45	17,174 15	19,285 15	3,179 50	26,726 86	14,801 26	568,034 95
Excise Seizures	14 28	62 00	.....	.....	.....	.....	.....	76 28
Hydraulic Rents	1,196 00	.....	.....	.....	.....	.....	.....	1,196 00
Minor Public Works	1 00	.....	.....	.....	.....	.....	.....	1 00
Weights and Measures	1,086 59	420 07	86 62	145 05	16 55	39 40	34 00	1,828 28
do Seizures	5 00	.....	.....	.....	.....	.....	.....	5 00
Gas Inspection	827 75	218 75	18 00	16 50	.....	17 50	70 50	1,169 00
Gas Penalty	10 00	.....	.....	.....	.....	.....	.....	10 00
Other Revenues	288 75	41 95	.....	19 00	.....	8 00	.....	367 70
Totals	269,830 95	221,209 22	17,278 77	19,465 70	3,198 05	26,791 76	14,905 76	572,678 21
MARCH:—								
Excise	587,205 99	395,078 57	28,523 81	45,622 63	9,196 41	53,254 66	20,963 21	1,139,848 28
Excise Seizures	103 48	10 00	.....	.....	.....	50 00	.....	163 46
Hydraulic Rents	8 00	.....	.....	.....	.....	.....	.....	8 00
Weights and Measures	1,238 20	601 40	63 13	160 12	18 35	58 75	53 85	2,193 80
Gas Inspection	731 75	360 75	15 00	15 00	4 75	10 50	58 75	1,196 50
Other Revenues	522 00	2 00	.....	.....	.....	.....	.....	524 00
Totals	589,809 40	396,050 72	28,606 94	45,797 75	9,219 51	53,373 91	21,075 81	1,143,934 04
APRIL:—								
Excise	190,193 07	168,285 43	15,353 88	16,292 48	1,072 91	22,827 36	20,786 15	434,810 78
Excise Seizures	195 00	100 00	.....	.....	.....	25 00	.....	320 00
Minor Public Works	100 00	20 00	.....	.....	.....	.....	.....	120 00
Weights and Measures	2,106 32	1,037 21	109 93	59 61	17 25	146 77	48 50	3,524 59
Gas Inspection	744 00	421 25	71 00	71 25	7 50	45 75	175 50	1,536 25
Other Revenues	616 75	16 00	.....	8 00	.....	16 00	.....	671 75
Totals	193,954 14	169,879 89	15,549 81	16,431 34	1,097 66	23,060 88	21,010 15	440,983 37
MAY:—								
Excise	247,368 55	228,427 86	21,043 82	24,317 06	4,034 73	24,086 07	15,972 73	565,250 82
Excise Seizures	.....	35 00	.....	.....	.....	.....	.....	35 00
Colliers	.....	352 99	.....	.....	.....	.....	.....	352 99
Hydraulic Rents	2 00	20 00	.....	.....	.....	.....	.....	22 00
Minor Public Works	130 00	121 00	.....	.....	.....	.....	.....	261 00

Inland Revenues—Excise.

Weights and Measures.....	931 24	1,047 34	60 82	100 29	16 05	28 95	17 55	2,202 24
do do Seizures.....	15 00	.....	.....	.....	.....	.....	.....	15 00
Gas Inspection.....	631 50	725 50	9 50	12 25	.....	8 75	74 50	1,462 00
Other Revenues.....	491 75	60 00	4 00	.....	.....	12 00	.....	567 75
Totals.....	249,570 04	230,789 69	21,128 14	24,429 60	4,050 78	24,135 77	16,064 78	570,168 80
JUNE —								
Excise.....	256,171 79	228,627 82	25,460 51	22,518 58	4,389 15	36,081 41	16,468 40	589,677 66
Excise Seizures.....	.....	270 06	.....	.....	.....	.....	.....	270 06
Cullers.....	.....	4,392 26	.....	.....	.....	.....	.....	4,392 26
Hydraulic Rents.....	375 00	.....	.....	.....	1 00	.....	.....	.....
Minor Public Works.....	172 00	.....	.....	.....	.....	.....	76 00	.....
Weights and Measures.....	1,667 10	1,849 98	172 05	118 20	33 60	26 00	3 35	3,870 28
Gas Inspection.....	1,101 00	739 75	82 25	42 00	.....	25 25	231 75	2,292 00
Other Revenues.....	583 45	12 00	.....	.....	.....	.....	.....	595 45
Totals.....	260,070 34	238,961 87	25,714 81	22,678 78	4,373 75	36,132 66	16,779 50	601,711 71
Grand Totals.....	3,868,676 90	3,232,092 11	294,733 77	334,200 40	54,198 26	416,376 33	244,325 63	8,444,503 40
Methylated Spirits.....	.....	.....	.....	.....	.....	.....	.....	12,396 28
Total agreeing with Statement No. 1, page 3.....	.....	.....	.....	.....	.....	.....	.....	8,456,899 68

**INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.**

**E. MIALLI,
Commissioner.**

EXCISE

No. 15.—COMPARATIVE Monthly

	July.	August.	September.	October.	November.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Spirits..... { 1892-93.....	316,298 09	333,970 86	362,477 42	392,842 79	380,073 33
{ 1893-94.....	301,853 89	333,529 73	362,538 39	392,599 03	411,150 12
Increase, 1893-94.....			60 97		31,076 79
Decrease, 1893-94.....	14,444 20	441 13		243 71	
Malt liquor..... { 1892-93.....	5,296 40	701 20	200 00	100 00	50 00
{ 1893-94.....	5,050 00	480 40	100 00	100 00	100 00
Increase, 1893-94.....					50 00
Decrease, 1893-94.....	246 40	220 80	100 00		
Malt..... { 1892-93.....	59,564 82	68,319 10	76,284 32	87,915 22	103,459 02
{ 1893-94.....	67,850 92	75,852 80	80,836 58	90,088 22	109,012 85
Increase, 1893-94.....	8,286 10	7,533 70	4,552 26	2,173 00	5,553 83
Decrease, 1893-94.....					
Tobacco..... { 1892-93.....	200,483 09	203,922 04	213,371 81	235,363 03	222,962 36
{ 1893-94.....	207,851 11	213,281 57	210,255 19	237,167 78	226,063 04
Increase, 1893-94.....	7,368 02	9,359 53		1,804 75	3,100 68
Decrease, 1893-94.....			2,816 62		
Cigars..... { 1892-93.....	63,270 49	64,565 22	60,123 41	60,968 75	57,092 82
{ 1893-94.....	68,568 10	68,197 32	62,387 15	63,099 93	58,205 61
Increase, 1893-94.....	5,297 61	3,632 10	2,263 74	2,131 18	1,112 79
Decrease, 1893-94.....					
Petroleum..... { 1892-93.....	1,749 13	3,124 23	5,667 65	6,009 70	6,733 10
{ 1893-94.....	1,907 09	2,578 17	4,926 40	6,243 28	5,420 69
Increase, 1893-94.....	157 96			233 58	
Decrease, 1893-94.....		546 06	741 25		1,312 41
Manufactures in bond { 1892-93.....	3,606 10	3,116 46	3,876 65	4,257 12	3,481 22
{ 1893-94.....	2,795 74	2,834 57	3,547 16	3,285 45	3,268 84
Increase, 1893-94.....					
Decrease, 1893-94.....	810 36	281 89	329 49	971 67	212 38
Seizures..... { 1892-93.....	595 95	674 60	872 13	1,057 51	832 95
{ 1893-94.....	220 31	71 87	433 00	200 00	310 00
Increase, 1893-94.....					
Decrease, 1893-94.....	375 64	602 73	439 13	857 51	522 95
Other receipts..... { 1892-93.....	6,658 55	2,014 78	1,948 27	1,887 60	1,210 00
{ 1893-94.....	6,381 79	1,711 39	1,054 26	2,469 77	1,097 30
Increase, 1893-94.....				582 17	
Decrease, 1893-94.....	276 76	303 39	894 01		112 70
Total revenue, 1892-93.....	657,522 62	685,408 49	724,521 66	790,401 72	775,894 80
do 1893-94.....	662,478 95	703,537 82	726,078 13	795,253 51	814,628 45
Total increase, 1893-94.....	4,956 33	18,129 33	1,556 47	4,851 79	38,733 65
Total decrease, 1893-94.....					

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

REVENUE.

Statement, 1892-93, 1893-94.

December.	January.	February.	March.	April.	May.	June.	Total.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
464,547 33	326,223 19	295,269 88	287,158 42	313,910 31	344,529 18	319,755 98	4,142,056 78
447,541 08	319,690 61	272,645 36	704,319 98	129,449 94	221,672 37	231,647 21	4,133,637 76
17,006 25	6,532 58	22,624 52	417,161 56	184,460 37	122,556 81	88,108 77	8,419 02
50 00		55 00	25 00	25 00	101 10	50 00	6,628 70
50 00		50 00		25 00	75 00	69 80	6,125 20
			25 00			19 80	
		5 00			26 10		503 50
97,099 98	80,480 00	74,873 64	100,913 38	96,633 52	87,672 72	74,914 30	1,008,130 02
77,424 34	83,152 26	68,915 86	93,015 87	84,122 12	75,538 78	50,880 14	956,690 74
	2,672 26						
19,675 64		5,957 78	7,897 51	12,511 40	12,133 94	24,034 16	51,439 28
194,882 04	165,458 97	168,333 18	189,148 64	207,217 19	226,405 35	218,882 25	2,446,129 95
174,335 00	185,007 66	170,558 24	245,576 99	167,786 87	214,496 00	196,577 54	2,448,956 99
	19,548 69	2,225 06	56,428 35				2,827 04
20,547 04				39,430 32	11,909 35	22,304 71	
54,952 37	47,621 52	47,042 40	52,920 42	55,816 05	63,027 39	64,864 97	692,265 81
53,823 51	48,020 54	44,722 44	75,211 20	44,826 42	56,659 17	56,813 13	700,534 52
	399 02		22,290 78				8,268 71
1,128 86		2,319 96		10,989 63	6,368 22	8,061 84	
5,267 60	3,859 95	3,791 45	3,229 53	2,659 00	1,964 65	2,287 08	46,343 07
4,154 51	4,028 16	3,303 31	2,411 05	2,293 10	2,143 07	1,860 06	41,906 89
	168 21				178 42		
1,113 09		488 14	818 48	365 90		427 02	5,074 18
2,322 90	2,112 50	1,924 35	2,887 89	2,467 75	3,135 26	2,862 01	36,050 21
2,190 20	1,935 65	2,218 80	4,554 78	3,646 11	3,929 00	3,535 16	37,691 46
		294 45	1,666 89	1,178 36	793 74	673 15	1,641 25
132 70	176 85						
1,598 66	227 23	734 00	457 53	865 45	571 51	501 67	8,989 19
271 18	864 39	76 28	248 46	260 00	65 00	265 06	3,285 55
	637 16						
1,327 48		657 72	209 07	605 45	506 51	236 61	5,703 64
1,471 83	1,418 41	1,324 48	1,452 21	1,137 23	2,885 75	1,382 54	24,791 65
1,488 40	1,845 56	2,062 75	1,657 77	1,482 05	1,528 45	1,547 80	24,377 29
			205 56	344 82		165 26	
16 57	427 15	738 27			1,357 30		414 36
822,192 71	627,401 77	593,348 38	638,167 92	680,731 50	730,292 91	685,500 80	8,411,385 38
761,278 22	644,544 83	564,553 04	1,127,021 10	433,891 61	576,106 84	543,195 90	8,352,568 40
	17,143 06		488,853 08				
60,914 49		28,795 34		246,839 89	154,186 07	142,304 90	58,816 98

E. MIALL,
Commissioner.

No. 16.—REFUNDS of Revenue during the Fiscal Year ended 30th June, 1894.

EXCISE.							Amounts.	Totals.
Articles.	To whom paid.	Date.	Divisions.	Under what Authority refunded.		\$ cts.	\$ cts.	
Spirits.....	A. L. Howard.....	1893. Nov. 27..	Sherbrooke.....	Refunded under Revised Statutes, Cap. 29, Sec. 78.....		3,086 64		
		1894.						
	J. J. Heney.....	May 8..	Prescott.....	do do 29 do 78.....		4,565 45		
	do.....	do 23..	do.....	do do 29 do 78.....		4,507 02		
	A. L. Howard.....	June 8..	Sherbrooke.....	do do 29 do 78.....		4,370 28	16,479 39	
		1893.						
Malt Liquor.....	John Labatt.....	Aug. 16..	London.....	do do 34 do 238.....			49 12	
Malt.....	Fred. Langston.....	July 7..	Windsor.....	do do 34 do 238.....		17 80		
	J. C. Oland.....	do 7..	Halifax.....	do do 34 do 238.....		965 72		
	W. N. Wickwire.....	do 7..	do.....	do do 34 do 238.....		624 34		
	H. S. Fairall.....	do 7..	Victoria.....	do do 34 do 238.....		59 72		
	Hasenfratz & Lawson.....	do 7..	do.....	do do 34 do 238.....		115 84		
	C. Huether & Son.....	do 24..	Guelph.....	do do 29 do 78.....		29 46		
	Henry Rudolf.....	Aug. 1..	London.....	do do 29 do 78.....		381 35		
	John Labatt.....	do 1..	do.....	do do 29 do 78.....		1,340 82		
	Henry Heuser.....	do 1..	do.....	do do 29 do 78.....		17 62		
	Peter Heuser.....	do 1..	do.....	do do 29 do 78.....		51 96		
	Cyrus Bixel.....	do 1..	do.....	do do 29 do 78.....		269 09		
	T. H. Carling.....	do 1..	do.....	do do 29 do 78.....		1,924 91		
	John Fisher.....	do 1..	Kingston.....	do do 29 do 78.....		166 50		
	Estate late P. Bajus.....	do 1..	do.....	do do 29 do 78.....		94 10		
	L. H. Clarke.....	do 1..	do.....	do do 29 do 78.....		52 06		
	J. J. Steele.....	do 1..	Hamilton.....	do do 29 do 78.....		564 37		
	J. M. Lottridge.....	do 1..	do.....	do do 29 do 78.....		1,046 71		
	M. S. Wilson.....	do 1..	do.....	do do 29 do 78.....		1,421 92		
	Adam Cranston.....	do 1..	Guelph.....	do do 29 do 78.....		1,482 02		

No. 16.—REFUNDS OF REVENUE—Continued.

Articles.		To whom paid.	Date.	Divisions.	Under what Authority refunded.	Amounts.	Totals.
			1893.			\$ cts.	\$ cts.
Malt—Continued	S. C. Nash.....	Aug.	9.	Charlottetown	Refunded under Revised Statutes, Cap. 29, Sec. 78	83 50	
	W. N. Wickwire.....	do	9.	Halifax.	do do do 29 do 78	733 94	
	John Lindberg.....	do	9.	do	do do do 29 do 78	188 80	
	John C. O'Mullin.....	do	9.	do	do do do 29 do 78	288 90	
	C. W. Hayward.....	do	9.	do	do do do 29 do 78	177 40	
	J. C. Oland.....	do	9.	do	do do do 29 do 78	485 00	
	Simeon Jones.....	do	9.	St. John.	do do do 29 do 78	459 22	
	James Ready.....	do	9.	do	do do do 29 do 78	492 80	
	Boswell & Bros.....	do	9.	Quebec.	do do do 29 do 78	1,375 31	
	Henry J. Taylor.....	do	9.	St. Catharines	do do do 29 do 78	494 29	
	H. Calcutt.....	do	9.	Peterborough	do do do 29 do 78	215 24	
	W. H. Haslam.....	do	9.	do	do do do 29 do 78	18 76	
	A. Winslow.....	do	9.	do	do do do 29 do 78	574 32	
	D. Macpherson.....	do	9.	do	do do do 29 do 78	250 79	
	F. X. Messner.....	do	9.	Stratford	do do do 29 do 78	140 63	
	F. X. Mattman.....	do	12.	Perth.	do do do 29 do 78	17 20	
	Jos. Kappeler.....	do	14.	Vancouver.	do do do 29 do 78	31 38	
	G. F. & J. Galt.....	do	14.	do	do do do 29 do 78	30 00	
	Robert Oehner.....	do	14.	do	do do do 29 do 78	30 00	
	Hergott Bros.....	do	14.	Stratford	do do do 29 do 78	140 86	
	H. S. Fairall.....	do	14.	Victoria	do do do 29 do 78	12 00	
	Crommiller & White.....	do	16.	St. Catharines	do do do 29 do 78	222 55	
	D. J. McCarthy.....	do	22.	Prescott	do do do 29 do 78	233 94	
	John Sleeman.....	do	22.	Guelph	do do do 29 do 78	154 66	
	C. Huether.....	do	22.	do	do do do 29 do 78	82 46	
	P. Shea.....	do	22.	Winnipeg	do do do 29 do 78	46 36	
	Jas. A. Roy.....	Sept.	16.	Bellefleur	do do do 29 do 78	306 57	
	John Leahy.....	do	27.	Victoria	do do do 29 do 78	22 00	
	Doering & Marstrand & Co.	do	27.	do	do do do 29 do 78	80 00	
	C. Strangman.....	do	27.	Montreal	do do do 29 do 78	181 56	
	John Atkin.....	do	27.	do	do do do 29 do 78	24 00	
	C. S. Reinhardt.....	do	27.	do	do do do 29 do 78	707 96	
	J. H. R. Molson.....	do	27.	do	do do do 29 do 78	855 89	

No. 16.—REFUNDS of Revenue—Continued.

EXCISE—Continued.					
Articles.	To whom paid.	Date.	Divisions.	Under what Authority refunded.	Totals.
					\$ cts.
Tobacco—Continued.		1893.		Refunded under Revised Statutes, Cap. 29 Sec. 78.	\$ cts.
D. Ritchie & Co.		July 26.	Montreal.	do do	12 14
The J. B. Pace Tobacco Co.		Aug. 4.	do	do do	12 36
B. Goldstein		do 4.	do	do do	38 88
The Empire Tobacco Co.		do 4.	do	do do	120 55
do do		do 4.	do	do do	5 51
Geo. T. Tuckett		do 7.	Hamilton	do do	73 10
W. F. Badenach		do 9.	Montreal	do do	18 79
John Lemesurier		do 14.	Quebec.	do do	10 88
B. Houde & Co.		do 14.	do	do do	116 54
Jas. Henry		do 14.	Montreal	do do	22 00
Eli Griffith		do 28.	London	do do	0 68
J. B. Pace Tobacco Co.		Sept. 6.	Montreal.	do do	11 39
Geo. T. Tuckett		do 6.	Hamilton.	do do	68 50
B. Houde & Co.		do 7.	Quebec	do do	120 84
Eli Griffith		do 7.	London	do do	0 80
John Lemesurier		do 9.	Quebec.	do do	10 87
B. Goldstein		do 11.	Montreal.	do do	51 44
D. Ritchie & Co.		do 18.	do	do do	412 70
B. Goldstein		Oct. 4.	do	do do	44 45
J. B. Pace Tobacco Co.		do 4.	do	do do	11 17
Geo. T. Tuckett		do 10.	Hamilton	do do	47 75
E. A. McAlpin.		do 10.	Toronto	do do	73 55
do do		do 10.	do	do do	2 15
John Lemesurier		do 10.	Quebec.	do do	24 70
E. A. McAlpin.		do 10.	Toronto	do do	127 50
B. Houde & Co.		do 12.	Quebec.	do do	126 93
do do		do 13.	do	do do	7 80
John Lemesurier		do 13.	do	do do	14 80
The McAlpin Tobacco Co.		do 18.	Toronto	do do	170 26
D. Ritchie & Co.		Nov. 15.	Montreal	do do	355 37
John Lemesurier		do 15.	Quebec.	do do	16 26
B. Houde & Co.		do 15.	do	do do	107 93
The Empire Tobacco Co.		do 15.	Montreal.	do do	101 90

No. 16.—REFUNDS of Revenue—Concluded.

EXCISE—Concluded.						
Articles.	To whom paid.	Date.	Divisions.	Under what Authority refunded.	Amounts.	Totals.
					\$ cts.	\$ cts.
Tobacco—Concluded		1891.		Refunded under Revised Statutes, Cap. 34, Sec. 259		
	E. A. McAlpin	April 9.	Toronto	do	5 33	
	John Lemesurier	do 9.	Quebec	do	5 30	
	Eli Griffith	do 9.	London	do	0 77	
	B. Houde & Co.	do 9.	Quebec	do	149 77	
	John Lemesurier	do 10.	do	do	59 40	
	D. Ritchie & Co.	do 23.	Montreal	do	33 80	
	do	do 25.	do	do	86 06	
	J. B. Pace Tobacco Co.	do 25.	do	do	29 84	
	B. Goldstein	do 25.	do	do	55 67	
	John Lemesurier	May 4.	Quebec	do	8 72	
	B. Houde & Co.	do 8.	do	do	97 74	
	Geo. T. Tuckett	do 8.	Hamilton	do	44 70	
	Eli Griffith	do 9.	London	do	0 75	
	B. Goldstein	do 19.	Montreal	do	41 53	
	J. B. Pace Tobacco Co.	do 19.	do	do	23 19	
	do	do 5.	do	do	28 16	
	B. Goldstein	do 5.	do	do	49 95	
	B. Houde & Co.	do 5.	Quebec	do	103 55	
	John Lemesurier	do 5.	do	do	15 70	
	D. Ritchie & Co.	do 5.	Montreal	do	82 14	
	do	do 5.	do	do	1 25	
	Geo. T. Tuckett	do 6.	Hamilton	do	50 72	
	Eli Griffith	do 9.	London	do	1 52	
	Empire Tobacco Co.	do 13.	Montreal	do	2 66	
	do	do 13.	do	do	95 50	
	do	do 13.	do	do	18 60	
	D. Ritchie & Co.	do 25.	do	do	82 83	
						6,128 34
Cigars	Geo. T. Tuckett	Dec. 19.	Hamilton	do		62 73

Inland Revenues—Excise.

Petroleum	Imperial Oil Co.	Feb.	6..	London.	do	do	do	29	do	78.	.....	37	60
Seizures.	J. L. Hopkins	do	9..	Toronto	do	do	do	29	do	78.	.....	25	00
Grand Total											83,498	11	

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

No. 17.—DEPARTMENTAL EXPENDITURE, 1893-94.

(For Details, see Appendix B.)

Dr.

Cr.

Due by sundry persons, 1st July, 1893.	Disbursed by the Receiver General.	Deduction for Superannuation.	Totals.		Salaries.	Contingen- ctes.	Due by sundry persons, 30th June, 1894.	Totals.
\$ cts.	\$ cts.	\$ cts.	\$ cts.		\$ cts.	\$ cts.	\$ cts.	\$ cts.
5,000 00	5,000 00		5,000 00	Controller of Inland Revenue.....	5,000 00			5,000 00
37,410 70	37,410 70	715 94	38,126 64	Departmental Officers.....	38,126 64			38,126 64
425 74	425 74		425 74	Subscription to newspapers.....		425 74		425 74
1,748 64	1,748 64		1,748 64	Extra clerks.....		1,748 64		1,748 64
415 25	415 25		415 25	Telegraph companies.....		415 25		415 25
866 41	866 41		866 41	Stationery.....		866 41		866 41
93 65	93 65		93 65	Books.....		93 65		93 65
1,021 42	1,021 42		1,021 42	Printing.....		1,021 42		1,021 42
100 60	100 60		100 60	Lithographing.....		100 60		100 60
37 88	37 88		37 88	Postage.....		37 88		37 88
2,063 00	2,063 00		2,063 06	Sundry persons.....		2,063 00		2,063 06
16 66	49,173 29	715 94	49,905 89	Totals.....	43,126 64	6,762 59	16 66	49,905 89

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

WEIGHTS AND MEASURES, GAS AND LAW STAMPS.

DR. No. 18.—STATEMENT showing amount of Revenue accrued during year ended 30th June, 1894. CR.

	Weights and Measures Stamps.	Gas Stamps.	LAW STAMPS.		Totals.	Weights and Measures Stamps.	Gas Stamps.	LAW STAMPS.		Totals.
			Supreme Court.	Exchequer Court.				Supreme Court.	Exchequer Court.	
To amount of Stamps destroyed or returned by Distributors.	2,812 33	0 25	102 50	116 46	2,812 58	41,280 09	25,202 80	2,080 00	2,329 25	66,482 89
To amount of Stamps remaining in hands of Distributors, 30th June, 1894.	45,098 98	24,765 30			218 96	48,835 00	15,549 00	2,080 00	2,329 25	63,793 25
To Balance, being the Revenue accrued during 1893-94.	37,203 78	15,986 25	1,977 50	2,212 79	57,380 32	85,115 09	40,751 80	2,080 00	2,329 25	130,276 14
Totals.	85,115 09	40,751 80	2,080 00	2,329 25	130,276 14					

By amount of Stamps in the hands of Distributors on 1st July, 1893.
By Stamps issued by the Inland Revenue Department during the year.

Totals.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

E. MIALL,
Commissioner.

WEIGHTS AND MEASURES, 1893-94.
No. 19 (A).—INSPECTORS in Account with Revenue.

DR.

CR.

BALANCES DUE BY INSPECTORS, 1st JULY, 1893.		BALANCES DUE BY INSPECTORS, 30th JUNE, 1894.		Deposited to the credit of Receiver General.	Stamps returned or destroyed.	Transfer.	DIVISIONS.	Totals.	Transfer.	Seizures and Penalties.	Stamps issued to Inspectors.	Totals.	Totals.
\$	cts.	\$	cts.										
812 49	224 84	952 72	2 80	1,221 51	0 30		Belleville	2,177 33			1,140 00	2,177 33	2,177 33
3,428 84	1,798 08	3,504 60	1,766 60	7,274 79			Hamilton	12,635 92		5 00	7,304 00	12,635 92	12,635 92
1,192 90	38 52	1,188 70	0 93	1,391 70			Kingston	2,571 42			1,340 00	2,571 42	2,571 42
1,150 39	147 32	1,862 97	1 35	2,922 89			London	4,787 21		20 00	3,469 50	4,787 21	4,787 21
1,800 08		2,894 21		957 87			Orillia	3,892 08			2,092 00	3,892 08	3,892 08
1,780 57		1,250 25		1,768 32			Ottawa	3,018 57			1,238 00	3,018 57	3,018 57
4,029 45	548 44	3,059 61		3,807 23			Toronto	7,466 89		5 00	2,889 00	7,466 89	7,466 89
3,269 45	46 20	1,609 57		1,731 08			Windsor	3,340 65			2,899 00	3,340 65	3,340 65
17,484 17	2,803 40	16,962 63	1,761 68	21,065 46	0 30		Ontario	39,790 07		30 00	19,472 50	39,790 07	39,790 07
5,269 60	579 90	9,974 37		8,552 41			Montreal	18,954 50		5 00	13,100 00	18,954 50	18,954 50
3,109 30	307 85	3,120 93		2,897 93	2,747 63		Quebec	8,721 15			5,304 00	8,721 15	8,721 15
2,803 51		2,224 98		1,203 53			Three Rivers	3,428 51			625 00	3,428 51	3,428 51
11,182 41	887 75	15,320 28	682 38	12,353 87	2,747 63		Quebec	31,104 16		5 00	19,029 00	31,104 16	31,104 16
1,675 20	5 22			113 88			Fredericton	1,681 42				1,681 42	1,681 42
695 89	78 95	1,250 58		654 26		1,567 54	King's	1,934 84			1,160 00	1,934 84	1,934 84
1,259 64		2,015 70	28 88	782 60			St. John	2,827 18			1,567 54	2,827 18	2,827 18
3,631 73	84 17	3,266 28	28 88	1,550 74	30 00	1,567 54	New Brunswick	6,443 44			1,160 00	6,443 44	6,443 44
848 67		1,172 62		296 05			Cape Breton	1,468 67			620 00	1,468 67	1,468 67
685 06	99 46	1,794 51		956 76			Halifax	1,794 51			1,110 00	1,794 51	1,794 51
824 53		1,462 53	13 75	510 85	0 40		Pictou	1,163 00			383 00	1,163 00	1,163 00
234 38		358 36		259 02			Yarmouth	617 38				617 38	617 38
2,492 63	99 46	3,851 26	13 75	2,022 68	0 40		Nova Scotia	5,868 09			3,276 00	5,868 09	5,868 09

Inland Revenues—Excise.

323 86	697 50	1,021 36	.....	4 00	387 35	630 01	.....	1,021 36
5,239 45	42 30	5,281 75	.....	.....	773 27	4,470 83	37 65	5,281 75
895 84	200 00	1,095 84	.....	.....	478 15	617 69	.....	1,095 84
30 00	.....	30 00	Chief Inspector of Standards	30 00	.....	.....	.....	30 00
41,280 09	3,917 08	43,835 00	35 00	1,567 54	90,634 71	.....	.....	90,634 71
			Grand Totals..	2,812 33	38,631 52	45,098 98	2,524 34	90,634 71
				1,567 54	.....	.....	.....	.....

E. MIALI,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

WEIGHTS AND MEASURES, 1893-94.

No. 19 (B).—Deputy Inspectors of the Old Divisions in account
with Revenue.

DR.

CR.

Balances due 1st July, 1893. Cash on hand.	Totals.	Divisions.	Balances due 30th June, 1894. Cash on hand.	Totals.
\$ cts.	\$ cts.		\$ cts.	\$ cts.
87 10	87 10	..... Essex	87 10	87 10
87 10	87 10	..... Ontario	87 10	87 10
5 62	5 62	..... Hull	5 62	5 62
5 62	5 62	..... Quebec	5 62	5 62
92 72	92 72	..... Totals	92 72	92 72

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

GAS INSPECTION AND LAW STAMPS, 1893-94.

DR.

No. 20.—STAMP DISTRIBUTORS in Account with Inland Revenue Department.

CR.

BALANCES 1st JULY, 1893.		Penalties.		Stamps issued to Inspectors and others.		Totals.		DISTRICTS.		Commission allowed to Distributors of Stamps.		Returned or Damaged Stamps.		Deposited to credit of Receiver General.		BALANCES, 30th JUNE, 1894.		Totals.	
Stamps on hand.	Cash on hand.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	Stamps on hand.	Cash on hand.	\$	cts.
968 00						968 00		Barrie.....						53 75	914 25			968 00	
246 00	25 00					271 00		Belleville.....						56 25	214 75			271 00	
497 75	62 50					560 25		Berlin.....						127 00	433 25			560 25	
453 50	125 00					578 50		Brookville.....						199 75	390 50			590 50	
363 00						363 00		Cobourg.....				0 25		151 00	302 50			453 50	
495 75	50 00					545 75		Cornwall.....						54 75	308 25			453 50	
2,338 00	108 75					3,171 75		Guelph.....						181 50	364 25			363 00	
1,98 00	7 75					1,562 00		Hamilton.....						1,164 00	190 00			3,171 75	
423 25	9 00					519 50		Kingston.....						306 50	23 75			1,562 00	
511 00	106 50					1,200 00	20 00	Listowel.....						1,231 75	9 00			1,562 00	
858 50	19 00					1,749 75	10 00	London.....						439 75	596 00			1,749 75	
366 25						540 00		Napanee.....						70 75	450 50			1,749 75	
613 50	62 25					816 25		Ottawa.....						368 50	553 00			858 50	
440 25	74 00					514 25		Owen Sound.....						123 50	692 75			816 25	
396 00	9 00					405 00		Peterborough.....						206 75	844 00			1,050 75	
4,677 80	363 75					5,041 55		Sarnia.....						67 00	447 25			514 25	
								Stratford.....						168 50	401 00			567 50	
								Toronto.....						4,793 00	2,915 80			8,061 55	
15,716 30	706 00					23,163 80	30 00	Ontario.....						9,250 25	13,317 30			23,163 80	
1,234 25	512 94					1,747 19		Montreal.....						4,903 44	843 75			5,747 19	
1,861 25	46 00					1,907 25		Quebec.....						456 75	1,575 50			2,082 25	
413 00						413 00		Sherbrooke.....						57 00	356 00			413 00	
3,508 50	558 94					4,067 44		Quebec.....						5,417 19	2,775 25			8,192 44	
913 25						913 25		Fredericton.....						36 00	877 25			913 25	
1,462 75						1,462 75		Moncton.....						34 00	1,428 75			1,462 75	
690 50	26 50					717 00		St. John.....						371 25	470 75			842 00	
3,066 50	26 50					3,218 00		.....New Brunswick.....						441 25	2,776 75			3,218 00	

GAS INSPECTION AND LAW STAMPS, 1893-94—Concluded.

No. 20.—STAMP DISTRIBUTORS in Account with Inland Revenue Department.

DR. CR.

BALANCES, 1st JULY, 1893.		BALANCES, 30th JUNE, 1894.		Deposited to credit of Receiver General.	Returned or Damaged Stamps.	Commissions al- lowed to Dis- tributors of Stamps.	DISTRICTS.	Totals.	Penalties.	Stamps issued to Inspectors and others.	Totals.	Totals.	
Stamps on hand.	Cash on hand.	Stamps on hand.	Cash on hand.										
\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.
1,025 75	77 00	512 25	117 75	472 75	472 75	472 75	Halifax	1,102 75	.....	.....	.....	1,102 75	.....
110 25	.....	110 25	.....	.....	.....	.....	Pictou	110 25	.....	.....	.....	110 25	.....
1,186 00	77 00	622 50	117 75	472 75	.....	.....	Nova Scotia	1,213 00	.....	.....	.....	1,213 00	.....
494 50	.....	408 75	39 25	46 50	.....	.....	Charlottetown, P. E. I.	494 50	.....	.....	.....	494 50	.....
785 50	18 75	683 25	46 00	212 50	.....	.....	Winnipeg, Man.	941 75	.....	.....	.....	941 75	.....
.....	.....	1,167 00	.....	33 00	.....	.....	Nanaimo	1,200 00	.....	1,200 00	.....	1,200 00	.....
.....	.....	1,283 25	.....	154 25	.....	.....	New Westminster	1,437 50	.....	1,437 50	.....	1,437 50	.....
495 50	19 75	1,394 50	34 50	183 50	.....	.....	Vancouver	1,612 50	.....	1,612 50	.....	1,612 50	.....
495 50	19 75	336 75	30 75	347 75	.....	.....	Victoria	715 25	.....	200 00	.....	715 25	.....
.....	.....	4,181 50	65 25	718 50	.....	.....	British Columbia	4,965 25	.....	4,450 00	.....	4,965 25	.....
25,202 80	1,406 94	24,765 30	864 25	16,558 94	0 25	.....	Grand Totals	42,188 74	30 00	15,549 00	.....	42,188 74	.....
.....	.....	.....	.....	4,190 29	.....	218 96	Law Stamps	4,409 25	.....	4,409 25	.....	4,409 25	.....

E. MIALLE,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

WEIGHTS AND MEASURES, 1893-94.
No. 21 (A).—INSPECTION Divisions in Account with Expenditure.

Dr.

(For details, see Appendix B.)

Cr.

Amounts due by sundry persons, 1st July, 1893.	Amounts received from Department to meet Expenditure.	DEDUCTIONS FROM SALARIES FOR		Totals.	DIVISIONS.	Amounts due to sundry persons, 1st July, 1893.	EXPENDITURE AUTHORIZED BY DEPARTMENT.						Totals.	
		Superannuation.	Insurance.				Salaries.	Seizure Expenses.	Special Assistance.	Rent.	Travelling Expenses.	Sundries.		
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
2,873 35	2,873 35	46 54	2,919 89	2,919 89	Belleville	2,333 29	25 70	75 00	313 54	172 36	2,919 89	313 54	172 36	2,919 89
6,138 19	6,138 19	106 68	6,244 87	6,244 87	Hamilton	5,711 32	528 55	135 00	338 11	195 34	6,244 87	338 11	195 34	6,244 87
3,115 70	3,115 70	48 00	3,163 70	3,163 70	Kingston	2,400 00	763 70	135 00	383 29	235 41	3,163 70	383 29	235 41	3,163 70
3,339 54	3,339 54	54 00	3,393 54	3,393 54	London	2,700 00	693 54	5 25	562 35	125 54	3,393 54	562 35	125 54	3,393 54
2,891 92	2,891 92	51 06	2,943 00	2,943 00	Ottawa	2,300 00	643 00	2 40	597 25	45 75	2,943 00	597 25	45 75	2,943 00
4,037 51	4,037 51	56 28	4,093 79	4,093 79	Ottawa	3,000 00	93 79	349 99	711 90	137 60	4,093 79	711 90	137 60	4,093 79
4,143 81	4,143 81	67 96	4,211 77	4,211 77	Toronto	3,400 00	811 77	718 43	718 43	93 84	4,211 77	718 43	93 84	4,211 77
2,304 50	2,304 50	36 00	2,340 50	2,340 50	Windsor	1,800 00	540 50	578 73	578 73	51 77	2,340 50	578 73	51 77	2,340 50
28,934 52	28,934 52	466 54	29,509 16	29,509 16	Ontario.	23,644 71	584 45	559 99	4,213 60	1,057 51	29,509 16	4,213 60	1,057 51	29,509 16
7,933 13	7,933 13	140 25	8,133 38	8,133 38	Montreal	7,097 20	103 18	150 00	761 11	275 07	8,133 38	761 11	275 07	8,133 38
5,919 68	5,919 68	71 56	5,991 27	5,991 27	Quebec	4,649 93	341 34	3 85	1,172 96	57 03	5,991 27	1,172 96	57 03	5,991 27
2,385 44	2,385 44	44 40	2,441 14	2,441 14	Three Rivers	2,199 96	241 18	1 50	208 32	32 86	2,441 14	208 32	32 86	2,441 14
1 50	1 50	1 50	1 50	1 50	District Inspector	1 50	1 50	1 50	1 50	1 50	1 50	1 50	1 50	1 50
16,249 75	16,249 75	256 24	16,567 29	16,567 29	Quebec	13,847 09	270 20	150 00	2,143 89	364 96	16,567 29	2,143 89	364 96	16,567 29
751 34	751 34	14 64	766 98	766 98	Fredericton	733 32	33 66	25 75	25 75	6 91	766 98	25 75	6 91	766 98
1,664 99	1,664 99	28 04	1,693 03	1,693 03	King's	1,400 00	293 03	1,400 00	273 50	19 53	1,693 03	273 50	19 53	1,693 03
2,102 37	2,102 37	40 00	2,142 37	2,142 37	St. John	2,000 00	142 37	31 85	182 88	9 49	2,142 37	182 88	9 49	2,142 37
32 32	32 32	32 32	32 32	32 32	District Inspector	32 32	32 32	31 85	31 85	0 47	32 32	31 85	0 47	32 32
4,561 02	4,561 02	82 68	4,633 70	4,633 70	New Brunswick	4,133 32	500 38	463 98	463 98	36 40	4,633 70	463 98	36 40	4,633 70

WEIGHTS AND MEASURES, 1893-94—Concluded.
 No. 21 (A).—INSPECTION Divisions in Account with Expenditure.
 (For details see Appendix B.)

CR.

DR.

Amounts due by sundry persons, 1st July, 1893.	Amounts received from Department to meet Expenditure.	DEDUCTIONS FROM SALARIES FOR		Totals.	DIVISIONS.	Amounts due to sundry persons, 1st July, 1893.	EXPENDITURE AUTHORIZED BY DEPARTMENT.						Totals.	
		Superannuation.	Insurance.				SALARIES.	Seizure Expenses.	Special Assistance.	Rent.	Travelling Expenses.	Sundries.		
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	
986 85	16 00	16 00		1,002 85	Cape Breton	800 00						167 23	35 62	1,002 85
2,294 25	31 96	31 96		2,326 25	Halifax	1,600 00			375 00			224 97	126 28	2,326 25
1,619 17	30 00	30 00		1,649 17	Pictou	1,500 00						118 67	30 50	1,649 17
1,171 39	20 00	20 00		1,191 39	Yarmouth	1,000 00						169 72	21 67	1,191 39
6,071 70	97 96	97 96		6,169 66	Nova Scotia	4,900 00			375 00			680 59	214 07	6,169 66
2,003 58	36 00	36 00		2,039 58	Charlottetown, P.E.I.	1,800 00						194 95	44 63	2,039 58
5,315 57	86 09	86 09		5,401 66	Winnipeg	4,689 28		346 72	135 00			165 75	64 91	5,401 66
358 35				358 35	District Inspector							358 35		358 35
5,673 92	86 09	86 09		5,760 01	Manitoba	4,689 28		346 72	135 00			524 10	64 91	5,760 01
1,905 69	23 08	23 08		1,928 77	Victoria, B.C.	1,150 00			300 00			394 20	84 57	1,928 77
2,289 05	40 00	40 00		2,329 05	Chief Inspector of Standards	2,000 00						259 80	69 25	2,329 05
1,308 11	15 00	15 00		1,323 11	Inspector of Scale Factories	750 00						570 97	2 14	1,323 11
2,006 02				2,006 02	General Contingencies								2,006 02	2,006 02
451 10				451 10	Printing								451 10	451 10
187 00				187 00	Lithographing								187 00	187 00
551 43				551 43	Stationery								551 43	551 43
72,182 89	1,103 59	1,103 59	61 30	73,455 88	Grand Totals	56,914 40	37 20	346 72	1,519 99	9,446 08	5,133 99	9,446 08	5,133 99	73,455 88

E. MIALL,
 Commissioner.

INLAND REVENUE DEPARTMENT,
 OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

WEIGHTS AND MEASURES, 1893-94—*Concluded.*

No. 21 (B).—INSPECTION Divisions in account with Expenditure (Old Divisions.)

DR.

CR.

Balances due by sundry persons, 1st July, 1893.	Totals.	Divisions.	Balances due by sundry persons, 30th June, 1894.	Totals.
\$ cts.	\$ cts.		\$ cts.	\$ cts.
39 56	39 56	..... Essex	39 56	39 56
33 53	33 53	..... Waterloo	33 53	33 53
73 09	73 09	..... Ontario	73 09	73 09
0 33	0 33	..... Drummond	0 33	0 33
41 45	41 45	..... Laval	41 45	41 45
26 88	26 88	..... Montmorency	26 88	26 88
27 51	27 51	..... Richelieu	27 51	27 51
96 17	96 17	..... Quebec	96 17	96 17
24 00	24 00	..... Lunenburg, Nova Scotia	24 00	24 00
193 26	193 26	..... Totals	193 26	193 26

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

GAS INSPECTION, 1893-94.

No. 22.—INSPECTION Districts in Account with Expenditure.

(For details, see Appendix B.)

Dr.

Cr.

Amounts due by sun-dry persons, 1st July, 1893.	Amounts received from Department to meet expenditure.	Deductions from Salaries for Superannuation.	Totals.	Districts.	Balances due to sun-dry persons, 1st July, 1893.	EXPENDITURE AUTHORIZED BY THE DEPARTMENT.					Totals.	Amounts due by sun-dry persons, 30th June, 1894.
						Salaries.	Special Assistance.	Rent.	Travelling Expenses.	Sundries.			$	cts.	$	cts.
104 55	102 55	2 00	104 55	Barrie	100 00					4 55	104 55	
342 48	337 48	5 00	342 48	Belleville	250 00		50 00			42 48	342 48	
110 80	108 80	2 00	110 80	Berlin	100 00					10 80	110 80	
128 43	128 43	2 00	128 43	Brookville	100 00					28 43	128 43	
172 80	170 80	2 00	172 80	Cobourg	100 00			38 00		34 80	172 80	
175 68	173 68	2 00	175 68	Cornwall	100 00			19 00		56 68	175 68	
112 40	110 40	2 00	112 40	Guelph	100 00		36 00	110 20		12 40	112 40	
1,494 69	1,488 73	25 96	1,494 69	Hamilton	1,300 00		45 00	63 25		48 49	1,494 69	
508 25	500 25	8 00	508 25	Kingston	400 00		60 00	216 85		0 55	508 25	
159 80	159 80	1 25	160 55	Listowel	100 00		110 00			85 00	1,411 85	
1,391 85	1,391 85	20 00	1,411 85	London	1,000 00					6 00	1,06 00	
104 00	104 00	2 00	106 00	Napanee	100 00		200 00			112 55	1,212 55	
1,194 55	1,194 55	18 00	1,212 55	Ottawa	900 00		200 00			112 55	1,212 55	
321 00	321 00	4 00	325 00	Owen Sound	200 00		125 00			15 95	325 00	
239 70	235 70	4 00	239 70	Peterborough	200 00		20 00	23 75		15 95	239 70	
26 55	26 55		26 55	Sarnia						6 55	26 55	
98 00	98 00		100 00	Stratford	100 00						100 00	
2,217 83	2,217 83	35 03	2,252 86	Toronto	2,206 91		646 00	407 80		45 95	2,252 86	
8,847 90	8,847 90	137 24	8,985 14	Ontario	7,356 91		646 00	407 80		574 43	8,985 14	
2,341 65	2,341 65	56 08	2,497 73	Montreal	2,200 00		120 00	13 25		86 98	2,497 73	
1,487 91	1,487 91	25 96	1,536 46	Quebec	1,300 00		150 00			86 46	1,536 46	
98 00	98 00	2 00	100 00	Sherbrooke	100 00						100 00	
3,927 56	3,927 56	84 04	4,134 19	Quebec	3,600 00		270 00	13 25		173 44	4,134 19	

Inland Revenues—Excise.

197 50	2 50	200 00	Fredericton	200 00					200 00
389 52	6 00	389 52	Moncton	300 00				33 00	389 52
1,074 98	20 00	1,074 98	St. John	1,000 00				74 98	1,074 98
1,636 00	28 50	1,664 50	New Brunswick	1,500 00				107 98	1,664 50
2,151 10	25 96	2,177 06	Halifax	1,300 00		310 20		107 63	2,177 06
12 88		12 88	Pictou						12 88
2,151 10	25 96	2,189 94	Nova Scotia	1,300 00		310 20		107 63	2,189 94
224 50	2 50	227 00	Charlottetown, P. E. I.	200 00				27 00	227 00
361 24	4 00	365 24	Winnipeg, Man.	200 00	0 08	135 00		30 16	365 24
287 93	1 12	289 05	Nanaimo	58 31				280 74	289 05
449 71	1 12	450 83	New Westminster	58 31			1 50	391 02	450 83
449 35	1 12	450 47	Vancouver	58 31				392 16	450 47
612 83	4 00	641 83	Victoria	200 00		325 00		116 83	641 83
43 50		43 50	District Inspector					43 50	43 50
1,843 32	7 36	1,875 68	British Columbia	374 93		325 00		1,180 75	1,875 68
1,920 07		2,120 07	General Expenses				328 25	1,591 82	2,120 07
326 88		326 88	Printing					326 88	326 88
99 63		99 63	Stationery					99 63	99 63
21,398 20	269 60	21,988 27	Grand Totals	14,631 94	0 08	1,686 20	1,310 05	4,169 72	21,988 27

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Dr. No. 28.—STATEMENT showing the Transactions in connection with the Manufacture of Methylated Spirits. Cr.

Amount.		Totals.		Amount.		Totals.	
\$	cts.	\$	cts.	\$	cts.	\$	cts.
To Stock on hand 1st July, 1893							
Wood naphtha	989	47					
Methylated spirits	1,811	60					
Alcohol	1,717	74					
Drums and barrels	1,107	50					
Articles purchased during the year							
Alcohol	39,251	27					
Wood naphtha	32,826	65					
Benzine	15	54					
Drums and barrels	10,201	90					
Other expenses, as follows							
Freight	2,793	46					
Rent of warehouse	800	00					
do motor power	125	00					
Heating	132	00					
Lighting	17	71					
Salaries	2,000	62					
Stationery	7	33					
Sundries	437	71					
Balance, being net profit over expenditure							
			22,086	75			
				116,322 25			
By Goods sold during the year							
Methylated spirits	91,238	52					
Wood naphtha	87	95					
Drums and barrels	9,679	00					
Stock on hand, 30th June, 1894							
Wood naphtha	9,471	60					
Methylated spirits	2,830	86					
Alcohol	1,192	32					
Drums and barrels	1,822	00					
				15,316 78			
				101,005 47			

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

No. 24.—STATEMENT showing the amount voted and the Expenditure authorized for each Service, 1893-94.

Service.	Grant.	Expenditure.	Over- Expended.	Under- Expended.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Controller's Salary.....	5,000 00	5,000 00		
Departmental Salaries.....	39,750 00	38,126 64		1,623 36
do Contingencies.....	7,004 70	6,762 59		242 11
Excise Salaries.....	306,372 50	300,071 06		6,301 44
do Contingencies.....	47,830 06	46,880 70		949 30
do do stamps.....	28,989 80	28,989 80		
Commission to Customs Officers.....	5,100 00	4,856 30		243 70
Duty Pay.....	6,000 00	5,310 80		689 20
do other than special surveys.....	1,000 00	591 67		408 33
Cullers' Salaries.....	8,450 00	8,450 00		
do Contingencies.....	6,000 00	3,094 52		2,905 48
do Fees.....	8,300 00	7,769 98		530 02
do Annuities.....	7,500 00	5,966 68		1,533 32
Preventive Service.....	15,800 00	9,494 54		6,305 46
Minor Revenues.....	800 00	110 22		689 78
Tobacco Stamps Commission.....	100 00	100 43	0 43	
Weights and Measures Salaries.....	57,521 02	56,914 40		606 62
do Contingencies.....	17,950 00	16,433 38		1,516 62
Gas Inspection Salaries.....	14,525 00	14,531 84	6 84	
do Contingencies.....	8,000 00	7,095 96		904 04
Inspection of Staples.....	3,000 00	2,208 06		791 94
Adulteration of Food.....	25,000 00	24,006 67		993 33
Totals.....	619,993 02	592,766 24	7 27	27,234 05

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

APPENDIX A
STATISTICS

APPENDIX A—SPIRITS.

No. 1.—RETURN of Manufactures

REVENUE DIVISIONS.	GRAIN USED FOR DISTILLATION.				
	Malt.	Indian corn.	Rye.	Oats and other grain.	Wheat.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Belleville.....	149,400	2,831,580	819,335	28,920	55,165
Guelph.....	224,260	3,805,100	663,740	56,800	169,800
Hamilton.....	145,824	2,916,480	530,666	45,570	7,060
Perth.....					
Prescott.....					
Toronto.....					
Windsor.....	651,740	9,043,160	3,793,620	112,950	
Halifax.....	238,200	1,478,600		23,400	
Totals.....	1,409,424	20,074,920	5,807,361	267,640	232,025

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

for the Year ended 30th June, 1894.

Total Grain.	LICENSES.		Proof Spirits manufactured at \$1.50 and \$1.52 per gallon.		Duty collected ex- distillery, on deficiencies and assessments.		Total duty collected on assessments, defici- encies, and on license fees.
	No.	Fees.					
Lbs.		\$	Gallons.	\$ cts.	Gallons.	\$ cts.	\$ cts.
3,884,400	1	250	233,770·00	350,655 03	.....	.....	250 00
4,919,700	1	250	289,491·22	434,236 83	.....	.....	250 00
3,645,600	1	250	212,150·68	318,226 04	1,052·21	1,578 32	1,828 32
.....	2	500	.....	.....	153·60	233 47	733 47
.....	1	250	.....	.....	.....	.....	250 00
.....	1	250	.....	.....	.....	.....	250 00
13,601,470	1	250	777,586·82	1,166,380 25	.....	11·81	261 81
1,740,200	1	250	95,345·21	144,924 73	.....	.....	250 00
27,791,370	9	2,250	1,608,343·93	2,414,422 88	1,205·81	1,823 60	4,073 60

E. MIALL,
Commissioner.

APPENDIX A—Continued—SPIRITS.

No. 2.—COMPARATIVE STATEMENT OF Spirits manufactured

PROVINCES.	GRAIN, &C., USED FOR DISTILLATION.					
	Malt.	Indian Corn.	Rye.	Oats and other grain.	Wheat.	Barley.
1893.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Ontario.....	2,781,387	48,279,884	9,789,085	648,868	702,247	18,400
Quebec						
Nova Scotia	277,700	1,571,900	94,460	25,200		85,600
Totals.....	3,059,087	49,851,784	9,883,545	674,068	702,247	104,000
1894.						
Ontario.....	1,171,224	18,596,320	5,807,361	244,240	232,025	
Nova Scotia.....	238,200	1,478,600		23,400		
Totals.....	1,409,424	20,074,920	5,807,361	267,640	232,025	

Used also in Ontario :

	Grape Pomace.	Wine Lees.	Total.
1893	76,484	6,140	82,624 lbs.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

during the Years ended 30th June, 1893 and 1894.

Total Grain used for Distillation.	LICENSES.		Proof Spirits Manufactured at \$1.50 and \$1.52 per gall.		Duty collected ex-distillery, on Deficiencies and Assessments.		Total Duty collected on Assess- ments, Deficiencies, and on License Fees.
	No.	Fees.					
Lbs.		\$	Gallons.	\$ cts.	Gallons.	\$ cts.	\$ cts.
62,219,871	9	2,250	3,751,140 19	5,626,932 39	.....	.....	24,861 24
.....	1	250	.....	.....	.....	.....	250 00
2,054,860	1	250	105,814 36	160,837 83	.....	.....	1,206 05
64,274,731	11	2,750	3,856,954 55	5,787,770 22	.....	.....	26,317 29
26,051,170	8	2,000	1,512,998 72	2,269,498 15	1,205 81	1,823 60	3,823 60
1,740,200	1	250	95,345 21	144,924 73	.....	.....	250 00
27,791,370	9	2,250	1,608,343 93	2,414,422 88	1,205 81	1,823 60	4,073 60

E. MIALL,
Commissioner.

APPENDIX A—Continued—SPIRITS.

No. 3.—STATEMENT showing the transactions in the Distilleries

DIVISIONS.	Spirits in process, including Deficiencies brought forward.	Fusel Oil remaining to debit of Distillery.	Spirits manufactured during the Year.	Spirits returned to Distillery for Re-distillation.	Spirits received at Distillery from other sources.	
					Duty paid.	In bond.
	Gallons.	Gallons.	Gallons.	Gallons.	\$ cts.	Gallons.
Belleville.....	8,722·28	7,797·25	233,770·00	11,046·16	1,346 93	.....
Guelph.....	29,655·93	913·61	289,491·22	6,493·36	751 45	.....
Hamilton.....	5,425·64	726·72	212,150·68	{ 301·95* 50,453·68 }	543 04	.....
Perth.. .. .	564·50	.....	.....	.....	.....	.....
Prescott.....	36,415·32	5,953·11	.....	.....	284 54	.....
Toronto.....	100,453·96	14,330·94	.....	111,441·94	1,986 63	.....
Windsor.....	68,993·37	3,587·85	777,586·82	86,901·76	124 05	.....
Halifax.....	2,619·38	.....	95,345·21	.....	.....	.....
Totals.....	252,850·38	33,309·48	1,608,343·93	{ 301·95* 266,336·90 }	5,036 64	.....

*Duty paid spirits.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

in the Dominion of Canada during the Year ended 30th June, 1894.

Totals.	Spirits Warehoused during the Year.	Fusel Oil Written off.	Deficiencies on which duty was collected.	Spirits in process, including Deficiencies carried forward.	Totals.
Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.
262,682·62	247,786·52	7,797·25	.....	7,098·85	262,682·62
327,305·57	304,437·11	913·61	.....	21,954·85	327,305·57
269,601·71	260,470·74	726·72	1,052·21	7,352·04	269,601·71
564·50	283·61	.....	153·60	127·29	564·50
42,652·97	19,020·98	5,953·11	.....	17,678·88	42,652·97
228,213·47	121,945·59	14,330·94	.....	91,936·94	228,213·47
937,193·85	859,961·55	3,587·85	.....	73,644·45	937,193·85
97,964·59	97,560·52	.....	.....	404·07	97,964·59
2,166,179·28	1,911,466·62	33,309·48	1,205·81	220,197·37	2,166,179·28

E. MIALL,
Commissioner.

APPENDIX A—Continued—SPIRITS.

DR.

No. 4.—SPIRIT WAREHOUSE RETURN

Remaining in Warehouse from last Year.	Placed in Warehouse.	Imported	Received from other Divisions.	Totals.	REVENUE DIVISIONS.	Entered for Consumption at \$1.50 and \$1.52 per Gallon.	
						Gallons.	\$ cts.
598,108·82	247,786·52		33,121·91	879,017·25	Belleville.....	47,001·43	70,502 05
2,083·57			14,061·18	16,144·75	Brantford.....	14,625·65	21,938 68
693·26			6,114·99	6,808·25	Cornwall.....	6,276·30	9,414 56
800,593·42	304,437·11		46,047·61	1,151,078·14	Guelph.....	162,420·03	243,630 24
500,941·43	260,470·74		59,513·56	820,925·73	Hamilton.....	129,403·28	194,104 75
5,862·74			46,399·09	52,261·83	Kingston.....	38,225·94	57,339 42
9,943·64			57,384·96	67,328·60	London.....	56,295·61	84,455 72
14,543·17			113,544·34	133,087·51	Ottawa.....	121,188·61	181,786 06
4,089·87			96,164·55	100,254·42	do Govt. ware- house.....		
			68·90	68·90	do Dept. labora- tory.....		
2,800·19			11,367·50	14,167·69	Owen Sound... ..	11,978·83	17,965 53
60,601·14	283 61		30,935·59	91,820·34	Perth.....	39,988·42	60,144 64
2,961·79			25,287·02	28,248·81	Peterborough... ..	25,468·58	38,204 45
1,913·52			6,611·59	8,525·11	Port Arthur... ..	6,707·19	10,060 94
1,269,124·11	19,020·98	30,241·55	33,934·35	1,352,320·99	Prescott.....	44,060·28	75,162 76
2,078·47			15,775·29	17,851·76	St. Catharines... ..	15,343·07	23,014 92
3,888·23			20,094·93	23,983·16	Stratford.....	20,111·91	30,167 93
5,289,627·75	121,945·59	9·25	79,666·87	5,491,249·46	Toronto.....	389,668·23	582,709 48
4,365,691·46	859,961·55		14,907·18	5,240,560·19	Windsor.....	215,549·91	323,321 15
2,024·86			13,387·09	15,411·95	Joliette, Que... ..	13,597·54	20,396 37
99,176·89		*199·56	696,134·24	795,510·69	Montreal do.. ..	634,784·29	944,064 46
35,832·52			210,324·21	246,156·73	Quebec do.. ..	211,131·82	316,702 39
5,943·15			24,277·70	30,220·85	St. Hyacinthe, Que.....	28,797·97	43,207 67
2,524·45			19,727·76	22,252·21	St. Johns, Que... ..	19,497·09	29,245 25
7,809·37		14,567·57	54,705·05	77,081·99	Sherbrooke do... ..	58,405·65	91,987 18
1,699·45			18,968·72	20,668·17	Sorel do.....	17,332·17	25,998 31
1,385·11			11,896·16	13,281·27	Terrebonne do... ..	8,469·41	13,347 87
3,366·59			39,903·86	43,270·45	Three Rivers do... ..	38,360·10	57,540 15
254·73			209·65	464·38	Chatham, N.B... ..	336·67	505 02
9,969·18			81,758·72	91,727·90	St. John do.....	83,300·68	125,698 72
323,247·95	97,560·52	36·09	28,125·49	448,970·05	Halifax, N.S... ..	63,170·38	95,436 62
174·21			3,801·81	3,976·02	Charlottetown, P. E. I.....	3,797·56	5,772 77
34,205·34			131,444·40	165,649·74	Winnipeg, Man... ..	139,388·97	209,099 90
13,756·06			37,446·51	51,202·57	Vancouver, B.C... ..	35,024·05	52,536 15
17,286·59		54·32	49,115·61	66,456·52	Victoria, B.C... ..	49,401·74	74,102 05
8,612·54				8,612·54	Sundries.....		
13,502,813·57	1,911,466·62	*199·56 44,908·78	2,137,228·39	17,596,616·92	.... Totals.....	2,749,109·36	4,129,564 16

*Seized.

†This includes the duty at 30c. per gall. on 44,809·12 galls. imported spirits used in bonded manu-
factories.INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

for the Year ended 30th June, 1894.

CR.

REMOVED IN BOND.		FREE.		Exported.	Used in Bonded Factories.	Remaining in Warehouse.	Totals.
To other Divisions.	To Distillery for re- distillation.	Legal Allowance	Other.				
Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.
191,888·99	11,046·16	5,013·03	983·02	199·74		622,884·88	879,017·95
						1,519·10	16,144·75
						531·95	6,808·25
135,696·09	6,493·36	12,368·85	751·45	240·54		833,107·82	1,151,078·14
86,865·14	50,453·68	9,168·84	609·56	388·42	25,130·58	518,906·23	820,925·73
					7,816·11	6,219·78	52,261·83
						10,991·82	67,328·60
1,205·79				41·17		10,491·68	133,087·51
			201·53				
			20·13		†93,351·62	6,882·67	100,254·42
			68·90				68·90
						2,188·86	14,167·69
						50,907·47	91,820·34
		924·45				2,780·23	28,248·81
						1,817·92	8,525·11
278,502·70		4,949·75	846·93	1,957·09	30,241·55	991,762·69	1,352,320·99
						2,508·69	17,851·76
						3,871·25	23,983·16
750,799·68	111,441·94	45,387·43	2,901·51	6,214·46	54,771·59	4,130,064·62	5,491,249·46
605,302·08	86,901·76	81,595·23	101·92	64,667·52		4,186,441·77	5,240,560·19
						1,814·41	15,411·95
27,961·21				274·70	46,923·38	85,567·11	795,510·69
17·89					12,339·04	22,667·98	246,156·73
						1,422·88	30,220·85
						2,755·12	22,252·21
						3,528·15	77,081·99
580·62						408·21	20,668·17
			520·54		4,291·32	4,910·35	43,270·45
						127·71	464·38
				3·06		8,214·51	91,727·90
209·65				1,139·63		326,665·43	448,970·05
53,230·61		4,764·00					
						178·46	3,976·02
						24,947·10	165,649·74
1,313·67				228·96		13,049·96	51,202·57
2,899·60				742·96		15,557·15	66,456·52
754·67						8,612·54	8,612·54
					†93,351·62		
2,137,228·39	266,336·90	164,171·58	*7,005·49	76,098·25	196,489·35	11,906,825·98	17,596,616·92

*Of this quantity 6,194·39 galls. is spirits allowed distillers, free of duty, as compensation for duty-paid spirits taken into distilleries.

540·67 do written off by authority.
 205·19 do for use of the Government.
 65·24 do do His Excellency the Governor General.

7,005·49

†Used in the manufacture of methylated spirits at Government warehouse, Ottawa.

E. MIALL,
Commissioner.

APPENDIX A—Continued—SPIRITS.

DR.

No. 5.—COMPARATIVE STATEMENT of Warehouse

Remaining in Warehouse from last year.	Placed in Warehouse	Re-warehoused and Imported	Received in Bond from other Divisions.	Totals.	Provinces.	Entered for consumption at \$1.50 and \$1.52 per gallon.	
Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	1893.	Gallons.	\$ cts.
12,295,385·06	3,908,604·09	46,592·97	774,070·38	17,024,652·50	Ontario.....	1,341,743·94	2,023,801 56
145,845·17	.....	25,223·95	1,091,173·51	1,262,242·63	Quebec.....	1,005,274·49	1,513,303 82
14,894·28	.....	.....	90,818·98	105,713·26	New Brunswick...	94,249·90	142,003 88
323,988·86	108,799·59	199·29	40,037·29	473,025·03	Nova Scotia.....	68,528·73	103,374 85
1,057·84	.....	.....	4,090·43	5,148·27	Prince Edward I'd	4,974·06	7,541 89
33,136·88	.....	.....	137,735·27	170,872·15	Manitoba.....	135,775·78	203,689 83
21,771·89	.....	.....	99,827·11	121,598·50	British Columbia..	81,349·17	122,023 66
12,836,079·48	4,017,403·68	72,016·21	2,237,752·97	19,163,252·34	..... Totals.....	2,731,896·07	4,115,739 49
1894.							
12,944,157·12	1,813,906·10	30,250·80	716,001·41	15,504,315·43	Ontario.....	1,344,313·27	2,023,923 28
159,762·39	.....	{ *199·56 14,567·57 }	1,089,324·79	1,263,854·31	Quebec.....	1,030,376·04	1,542,489 65
10,223·91	.....	.....	81,968·37	92,192·28	New Brunswick ..	83,637·35	126,203 74
323,247·95	97,560·52	36·09	28,125·49	448,970·05	Nova Scotia.....	63,170·38	95,436 62
174·21	.....	.....	3,801·81	3,976·02	Prince Edward I'd	3,797·56	5,772 77
34,205·34	.....	.....	131,444·40	165,649·74	Manitoba.....	139,388·97	209,099 90
31,042·65	.....	54·32	86,562·12	117,659·09	British Columbia..	84,425·79	126,638 20
13,502,813·57	1,911,466·62	{ *199 56 44,908 78 }	2,137,228·39	17,596,616·92	..... Totals.....	2,749,109·36	4,129,564 16

*Seized.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

Returns for the years ended 30th June, 1893 and 1894.

CR.

REMOVED IN BOND.		FREE.		Exported.	Used in Bonded Factories.	Remaining in Warehouse.	Totals.
To other Divisions.	To Distillery for Re- distillation.	Legal Allowance.	Other.				
Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.
2,143,749·94	184,177·02	112,785·33	4,855·04	48,056·13	{ *98,145·68 146,982·30 }	12,944,157·12	17,024,652·50
11,023·13	.....	.....	.....	990·81	85,191·81	159,762·39	1,262,242·63
1,066·64	.....	.....	.....	33·22	139·59	10,223·91	108,713·26
73,303·11	1,674·07	4,845·24	473·61	962·32	.....	323,247·95	473,025·03
.....	.....	.....	.....	.....	.....	174·21	5,148·27
891·03	.....	.....	.....	.....	.....	34,205·34	170,872·15
7,719·12	.....	.....	280·36	1,207·20	.....	31,042·65	121,598·50
2,237,752·97	185,851·09	117,630·57	5,609·01	51,239·68	{ *98,145·68 232,313·70 }	13,502,813·57	19,163,252·34
2,050,260·47	266,336·90	159,407·58	6,484·95	73,708·94	{ *93,351·62 117,959·83 }	11,392,491·87	15,504,315·43
28,559·72	.....	.....	520·54	274·70	78,529·52	125,593·79	1,263,854·31
209·65	.....	.....	.....	3·06	.....	8,342·22	92,192·28
53,230·61	.....	4,764·00	.....	1,139·63	.....	326,665·43	448,970·05
.....	.....	.....	.....	.....	.....	178·46	3,976·02
1,313·67	.....	.....	.....	.....	.....	24,947·10	165,649·74
3,654·27	.....	.....	.....	971·92	.....	28,607·11	117,659·09
2,137,228·39	266,336·90	164,171·58	7,005·49	76,098·25	{ *93,351·62 196,489·35 }	11,906,825·98	17,596,616·92

*Used in the manufacture of methylated spirits at Government warehouse, Ottawa.

	1893.	1894.
Total duty collected, ex-manufactory and ex-warehouse.....	\$ 4,139,306 78	\$ 4,131,387 76
do on licenses.....	2,750 00	2,250 00
	<u>\$ 4,142,056 78</u>	<u>\$ 4,133,637 76</u>

E. MIALL,
Commissioner.

APPENDIX A—Continued—MALT.

No. 6.—RETURN of Malt manufactured for the Year ended 30th June, 1894.

REVENUE DIVISIONS.	No. of Malsters.	License Fees.	Grain placed in Steep.	Malt manufactured.	Paid Duty Ex-manu- factory.	Ware- housed.	Total Duty collected Ex-manu- factory, and on License Fees.
		\$	Lbs.	Lbs.	Lbs.	Lbs.	\$ cts.
Belleville.....	1	50	329,928	254,562	4,625	249,937	142 50
Brantford.....	3	150	548,443	443,981	.....	443,981	150 00
Guelph.....	8	725	6,102,895	4,863,640	.....	4,863,640	725 00
Hamilton.....	3	500	5,002,364	4,084,688	.....	4,084,688	500 00
Kingston.....	2	250	3,100,528	2,453,444	.....	2,453,444	250 00
London.....	3	450	5,408,860	4,350,240	.....	4,350,240	450 00
Ottawa.....	1	50	129,188	91,520	.....	91,520	50 00
Owen Sound.....	2	100	561,882	454,352	.....	454,352	100 00
Peterborough.....	3	300	1,615,580	1,277,085	.....	1,277,085	300 00
Prescott.....	3	300	2,618,582	2,090,230	.....	2,090,230	300 00
St. Catharines.....	2	100	974,003	784,387	.....	784,387	100 00
Stratford.....	1	200	1,693,800	1,353,995	.....	1,353,995	200 00
Toronto.....	9	1,200	15,251,251	11,965,831	.....	11,965,831	1,200 00
Windsor.....	1	200	2,806,620	2,307,870	.....	2,307,870	200 00
Totals.....	42	4,575	46,143,924	36,775,825	4,625	36,771,200	4,667 50
Montreal.....	5	700	8,898,491	7,165,239	3,453	7,161,786	769 06
Quebec.....	1	150	1,318,413	1,033,659	.....	1,033,659	150 00
Totals.....	6	850	10,216,904	8,198,898	3,453	8,195,445	919 06
Halifax.....	1	100	392,146	318,234	.....	318,234	100 00
Charlottetown.....	1	50	17,200	13,282	.....	13,282	50 00
Winnipeg.....	3	300	1,924,277	1,500,119	.....	1,500,119	300 00
Grand Total.....	53	5,875	58,694,451	46,806,358	8,078	46,798,280	6,036 56

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

APPENDIX A—Continued—MALT.

No. 7.—COMPARATIVE STATEMENT of Malt manufactured for the years ended
30th June, 1893 and 1894.

PROVINCES.	No. of Maltsters.	License Fees.	Grain placed in Steep.	Malt manufactured.	Paid Duty Ex-manu-factory.	Ware-housed.	Total Duty collected ex-factory, and on License Fees.
		\$	Lbs.	Lbs.	Lbs.	Lbs.	\$ cts.
1893.							
Ontario.....	47	4,975	54,323,842	43,363,025	.....	43,363,025	4,975 00
Quebec.....	6	900	9,747,026	7,851,844	77,607	7,774,237	2,452 14
Nova Scotia.....	1	100	354,147	282,900	....	282,900	100 00
Prince Edward Island	1	50	63,200	49,611	.....	49,611	50 00
Manitoba.....	5	350	2,080,260	1,657,900	906	1,656,994	368 12
British Columbia ...	2	100	105,693	84,054	5,561	78,493	211 22
Totals	62	6,475	66,674,168	53,289,334	84,074	53,205,260	8,156 48
1894.							
Ontario.....	42	4,575	46,143,924	36,775,825	4,625	36,771,200	4,667 50
Quebec.....	6	850	10,216,904	8,198,898	3,453	8,195,445	919 06
Nova Scotia.....	1	100	392,146	318,234	.....	318,234	100 00
Prince Edward Island	1	50	17,200	13,282	.....	13,282	50 00
Manitoba.....	3	300	1,924,277	1,500,119	....	1,500,119	300 00
Totals	53	5,875	58,694,451	46,806,358	8,078	46,798,280	6,086 56

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

APPENDIX A—Continued—MALT.

DR.

No. 8.—MALT WAREHOUSE RETURN

Remaining in Warehouse from last year.	Placed in Warehouse.	Increase.	Received from other Divisions.	Imported.	Totals.	REVENUE DIVISIONS.
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	
116,181	249,937	936			367,054	Belleville
285,334	443,981	6,067			735,382	Brantford
2,178,359	4,863,640	107,136	354,572		7,503,707	Guelph
1,479,530	4,084,688	55,706	260,404	6,800	5,887,128	Hamilton
6,251,930	2,453,444	21,020			8,726,394	Kingston
1,847,988	4,350,240	43,860	362,800	7,660	6,612,548	London
35,081	91,520	8,023	226,602		361,226	Ottawa
459,860	454,352	7,003	320,649		1,241,864	Owen Sound
21,123			7,384		28,507	Perth
686,627	1,277,085	36,391	223,975		2,224,078	Peterborough
7,022			12,960		19,982	Port Arthur
1,227,222	2,090,230	28,494	133,200		3,479,146	Prescott
214,341	784,387	7,984	6,775		1,013,487	St. Catharines
2,189,259	1,353,995	33,435	175,630		3,752,319	Stratford
8,135,480	11,965,831	111,496	371,198	34,000	20,618,005	Toronto
1,610,395	2,307,870	9,610	506,000	3,600	4,437,475	Windsor
26,745,732	36,771,200	477,161	2,962,149	52,060	67,008,302	Totals
4,123,730	7,161,786	139,703	629,741	1,636	12,056,596	Montreal
208,309	1,033,659	5,834	637,869		1,885,671	Quebec
		462	97,200		97,662	Sherbrooke
			51,600		51,600	Joliette
4,332,039	8,195,445	145,999	1,416,410	1,636	14,091,529	Totals
109,708		10,958	1,070,625	3,242	1,194,533	St. John, N.B.
120,136	318,234		1,965,000	8,454	2,412,824	Halifax, N.S.
25,809	13,282	912	36,000		76,003	Charlottetown, P.E.I.
588,104	1,500,119	17,618	66,000		2,171,841	Winnipeg
58,520			43,600	447,245	549,465	Vancouver
59,000			114,000	1,282,359	1,455,359	Victoria
32,039,148	46,798,280	652,648	7,674,784	1,794,996	88,959,856	Totals

INLAND REVENUE DEPARTMENT,
 OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

for the Year ended 30th June, 1894.

CR.

Entered for Consumption at 1½ and 2 cents per lb.		Removed to other Divisions.	Exported.	Free.	Remaining in Warehouse.	Totals.
Lbs.	\$ cts.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
288,681	5,370 02				78,373	367,054
452,372	8,311 44				283,010	735,382
4,172,104	77,718 89	1,278,881	74,239	1,036	1,977,447	7,503,707
2,987,650	55,214 79	679,643	133,912	3,305	2,077,618	5,887,128
1,219,570	19,983 30	1,540,200		850	5,965,774	8,726,394
4,406,693	81,654 85	475,000		1,400	1,729,455	6,612,548
304,214	5,678 08				57,012	361,226
799,254	14,531 08	12,960		156,423	273,227	1,241,864
23,030	433 68			5,477		28,507
1,060,816	19,722 40	681,400		637	481,225	2,224,078
19,982	365 82					19,982
2,046,566	37,743 53	145,125		3,666	1,283,789	3,479,146
779,463	14,622 50				234,024	1,013,487
2,133,442	40,359 01	1,223,200		1,599	394,078	3,752,319
11,279,867	209,311 41	1,299,175	181,800	4,560	7,852,603	20,618,005
2,040,736	37,068 73	232,000		19,192	2,145,547	4,437,475
34,014,440	628,089 53	7,567,584	394,951	198,145	24,833,182	67,008,302
8,809,023	163,936 22	3,600		10,153	3,233,820	12,056,596
1,713,257	32,344 16				172,414	1,885,671
97,662	1,590 96				24,000	97,662
27,600	518 81					51,600
10,647,542	198,390 15	3,600		10,153	3,430,234	14,091,529
1,033,496½	19,492 92			5,074½	155,962	1,194,533
2,002,212	38,259 74			248,129	162,483	2,412,824
76,003	1,340 06					76,003
1,572,293	28,955 20	103,600		8,219	487,729	2,171,841
526,783	9,735 05		3,600		19,082	549,465
1,430,359	26,391 53			1,000	24,000	1,455,359
51,303,128½	950,654 18	7,674,784	398,551	470,720½	29,112,672	88,959,856

E. MIALL,
Commissioner.

APPENDIX A—Continued—MALT.

DR. No. 9.—COMPARATIVE STATEMENT of Malt Warehouse

Remaining in Warehouse from last year.	Placed in Warehouse.	Increase.	Received from other Divisions.	Imported.	Totals.	PROVINCES.
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	1893.
22,814,793	43,363,025	427,642	1,997,313	49,538	68,652,311	.. Ontario.....
4,108,155	7,774,237	186,178	1,134,566	4,178	13,207,314	.. Quebec.....
203,250	.....	14,481	844,000	.....	1,061,731	.. New Brunswick.....
215,810	282,900	3,194	1,769,940	.....	2,271,844	.. Nova Scotia.....
56,530	49,611	3,168	.....	.....	109,309	.. Prince Edward Island.....
366,449	1,656,994	9,422	281,631	28,430	2,342,926	.. Manitoba.....
29,605	78,493	.....	341,600	1,683,387	2,132,485	.. British Columbia.....
27,794,592	53,205,260	644,085	6,368,450	1,765,533	89,777,920	..... Totals.....
26,745,732	36,771,200	477,161	2,962,149	52,060	67,008,302	.. Ontario.....
4,332,039	8,195,445	145,999	1,416,410	1,636	14,091,529	.. Quebec.....
109,708	.....	10,958	1,070,625	3,242	1,194,533	.. New Brunswick.....
120,136	318,234	.....	1,966,000	8,454	2,412,824	.. Nova Scotia.....
25,809	13,282	912	36,000	.....	76,003	.. Prince Edward Island.....
588,104	1,500,119	17,618	66,000	.....	2,171,841	.. Manitoba.....
117,620	.....	.....	157,600	1,729,604	2,004,824	.. British Columbia.....
32,039,148	46,798,280	652,648	7,674,784	1,794,996	88,959,856	..... Totals.....

	1893.	1894.
Total duty collected, ex-warehouse and ex-manufactory.....	\$1,001,655 02	\$950,765 74
do do on licenses.....	6,475 00	5,875 00
	<u>\$1,008,130 02</u>	<u>\$956,640 74</u>

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

Returns for the years ended 30th June, 1893 and 1894.

CR.

Entered for Consumption at 1½ and 2 cents per lb.		Removed to other Divisions.	Exported.		Free, and written off by authority.	Remaining in Warehouse.	Totals.
Lbs.	\$ cts.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	
34,673,148	693,462 96	6,139,450	307,078	786,903	26,745,732	68,652,311	
8,875,275	177,505 50	.....	.....	.....	4,332,039	13,207,314
952,023	19,040 46	.....	.....	.....	109,708	1,061,731
1,874,044	37,490 88	.....	.....	277,664	120,136	2,271,844
83,500	1,670 00	.....	.....	.....	25,809	109,309
1,525,822	30,516 44	229,000	.....	.....	588,104	2,342,923
2,014,865	40,297 30	.....	.....	.....	117,620	2,132,485
49,998,677	999,973 54	6,368,450	307,078	1,064,567	32,039,148	89,777,920	
34,014,440	628,089 53	7,567,584	394,951	198,145	24,833,182	67,008,302	
10,647,542	198,390 15	3,600	.....	10,153	3,430,234	14,091,529
1,033,496½	19,492 92	.....	.....	5,074½	155,962	1,194,533
2,002,212	38,259 74	.....	.....	248,129	162,483	2,412,824
76,003	1,340 06	.....	.....	.....	.....	76,003
1,572,293	28,955 20	103,600	.....	8,219	487,729	2,171,841
1,957,142	36,126 58	.....	3,600	1,000	43,082	2,004,824
51,303,128½	950,654 18	7,674,784	398,551	470,720½	29,112,672	88,959,856	

E. MIALL,
Commissioner.

APPENDIX A—Continued—MALT LIQUOR.

No. 10.—RETURN of Malt Liquor manufactured, for the Year ended 30th June, 1894.

REVENUE DIVISIONS.	No. of Brewers.	License Fees.	Total quantity of Malt used for brewing.	Sugar, Syrup, &c., used.	Malt Liquor manufactured.	Malt Liquor exported and used by H. M. Army and Navy.	Duty Collected, including License Fees.
		\$	Lbs.		Galls.	Galls.	\$ cts.
<i>Ontario.</i>							
Belleville.....	2	75	148,985		44,100		75 00
Brantford.....	3	150	447,261		167,876		150 00
Guelph.....	10	500	3,892,861		1,424,440		500 00
Hamilton.....	3	150	2,370,440		969,067		150 00
Kingston.....	2	100	296,078		95,125		100 00
London.....	6	300	4,405,261		1,637,303	1,163½	300 00
Ottawa.....	4	200	584,910		213,954		200 00
Owen Sound.....	7	350	1,105,822		458,020		350 00
Perth.....	1	50	23,830		6,300		50 00
Peterborough.....	* 3	150	1,060,483		361,220		150 00
Port Arthur.....	1	50	18,641		8,720		50 00
Prescott.....	3	150	2,048,542		698,613		150 00
St. Catharines.....	2	100	780,430		284,050		100 00
Stratford.....	6	275	444,265		188,380		275 00
Toronto.....	14	675	11,599,289		4,646,742		675 00
Windsor.....	3	150	1,375,986		604,071	100	156 60
Totals.....	70	3,425	30,603,084		11,807,981	1,263½	3,431 60
<i>Quebec.</i>							
Joliette.....	1	50	37,275		12,225		50 00
Montreal.....	9	425	10,524,186		3,608,430		425 00
Quebec.....	2	100	1,716,715		543,400		100 00
Sherbrooke.....	1	50	133,662		43,250		50 00
St. Hyacinthe.....	1	50	24,218		9,505		50 00
Terrebonne.....	1	50	20,160		6,895		50 00
Totals.....	15	725	12,456,216		4,223,705		725 00
St. John, N.B.....	2	100	1,030,746		310,795		100 00
Halifax, N.S.....	5	250	2,162,318		761,729	164,000½	250 00
Charlottetown, P.E.I.....	1	50	75,732		24,100		50 00
Winnipeg, Man.....	9	425	1,522,080		492,140		425 00
Vancouver, B.C.....	12	600	577,900		228,485	362	600 00
Victoria, B.C.....	8	400	1,392,271	4,000	450,692	16,160	543 60
Grand Totals.....	122	5,975	49,820,347	4,000	18,299,636	†181,785½	6,125 20

* One license fee paid in June, 1893.

† Exported . . 14,263½ galls.—Used by H. M. Army and Navy . . 167,522½ galls.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

E. MIALL,
Commissioner.

Inland Revenues—Excise.

APPENDIX A—Continued—MALT LIQUOR.

No. 11.—COMPARATIVE STATEMENT of Malt Liquor manufactured, for the
Years ended 30th June, 1893 and 1894.

PROVINCES.	No. of Brewers.	License Fees.	Total quantity of Malt used for brewing.	Sugar, Syrup, &c., used.	Malt Liquor manu- factured.	Malt Liquor exported and used by H. M. Army and Navy.	Duty Collected, includ- ing License Fees.
1893.		\$	Lbs.		Galls.	Galls.	\$ cts.
Ontario.....	73	3,650	29,318,167	2,953	11,145,882	12,240½	\$ 3,825 40
Quebec.....	16	800	11,573,911	30	3,800,524		830 00
New Brunswick.....	2	100	976,495		280,045		100 00
Nova Scotia.....	5	250	2,006,343		711,220	182,212½	250 00
Prince Edward Island.....	1	50	84,030		27,950		50 00
Manitoba.....	9	425	1,505,962		474,094		425 00
British Columbia.....	19	925	2,111,881	3,400	735,641	16,692	1,143 30
Totals.....	125	6,200	47,576,788	6,383	17,175,356	211,145	6,628 70
1894.							
Ontario.....	* 70	3,425	30,603,084		11,807,981	1,263½	\$ 3,431 60
Quebec.....	15	725	12,456,216		4,223,705		725 00
New Brunswick.....	2	100	1,030,746		310,795		100 00
Nova Scotia.....	5	250	2,162,318		761,729	164,000½	250 00
Prince Edward Island.....	1	50	75,732		24,100		50 00
Manitoba.....	9	425	1,522,080		492,149		425 00
British Columbia.....	20	1,000	1,970,171	4,000	679,177	16,522	1,143 60
Totals.....	122	5,975	49,820,347	4,000	18,299,636	181,785½	6,125 20

* One of these licenses is for the year 1893-94.

‡ One license fee paid in June, 1893.

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

APPENDIX A—Continued—TOBACCO.

No. 12.—RETURN of Manufactures

INLAND REVENUE DIVISIONS.	LICENSES.		Total weight of Leaf and other material actually used in the production of Tobacco made and excised.	TOBACCO MANUFACTURED.			CIGARETTES.	
	No.	Amount		At 25 cents per lb.	Paid Duty	Warehoused.	At \$1.50 per M.	Paid Duty
		\$ cts.	Lbs.	Lbs.	Lbs.	Lbs.	No.	No.
Hamilton.....	1	75 00	1,152,129	1,150,985½	127,540½	1,023,445	.....	.....
London.....	1	75 00	7,411	7,252½	2,543½	4,709½	.....	.....
Toronto.....	1	75 00	247,658	245,962½	49,755	196,207½	.....	.....
Totals..	3	225 00	1,407,198	1,404,200½	179,838½	1,224,362	.....	.....
Joliette.....	2	100 00	161,859	.....	.....	.....	.....	.....
Montreal.....	11	700 00	7,929,670	7,363,231½	369,330½	6,993,901½	70,437,680	44,450,560
Quebec.....	5	300 00	502,667	411,651	329,203	82,448	.....	.....
Sorel.....	1	50 00	20,747	.....	.....	.....	.....	.....
Three Rivers....	1	25 00	5,542	.....	.....	.....	.....	.....
Totals.....	20	1,175 00	8,620,485	7,774,882½	698,533½	7,076,349½	70,437,680	44,450,560
Halifax.....	2	150 00	158,125	164,626	19,287	145,339	.....	.....
Pictou.....	1	75 00	52,344	59,497	24,151	35,346	.....	.....
Totals.....	3	225 00	210,469	224,123	43,438	180,685	.....	.....
Charlottetown...	2	150 00	180,191	183,506	68,049	115,457	.....	.....
Grand Totals.	28	1,775 00	10,418,343	9,586,712½	989,859½	8,596,853½	70,437,680	44,450,560

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

for the year ended 30th June, 1894.

Ware- housed.	CANADIAN TOBACCO MANUFACTURED.			SNUFF MANUFACTURED.						DUTY COLLECTED, INCLUDING LICENSE FEES.
	At 5 cents per lb.	Paid Duty	Ware- housed.	At 25 cents per lb.	Paid Duty.	Ware- housed.	At 18 cents per lb.	Paid Duty	Ware- housed.	
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	\$ cts.
										31,960 14
										710 86
										12,513 75
										45,184 75
										7,000 82
25,987,120	163,491	138,015½	25,475½	5,025	5,020	5	90,540	90,525	15	183,052 24
	115,882	115,882					151,440	151,440		110,699 00
	16,783	16,783								338 60
	20,883	5,772	15,111							302 10
	5,542	5,542								
25,987,120	322,581	281,994½	40,586½	5,025	5,020	5	241,980	241,965	15	301,392 76
										4,971 75
										6,112 75
										11,084 50
										17,162 25
25,987,120	322,581	281,994½	40,586½	5,025	5,020	5	241,980	241,965	15	374,824 26

E. MIALL,
Commissioner.

APPENDIX A—Continued—TOBACCO.

No. 13.—COMPARATIVE STATEMENT of Manufactures

PROVINCES.	LICENSES.		Total weight of Raw Leaf and other materials actually used in the production of tobacco, made and excised.	TOBACCO MANUFACTURED.			CIGARETTES.	
	No.	Amount		At 25 cents per lb.	Paid Duty.	Ware-housed.	At \$1.50 p. M.	Paid Duty.
1893.		\$ cts.	Lbs.	Lbs.	Lbs.	Lbs.	No.	No.
Ontario	3	225 00	2,637,884	1,547,519	211,264	7,336,255	.....	.....
Quebec	20	1,250 00	8,766,868½	7,825,813½	753,828½	1,071,985	47,749,600	32,252,100
Nova Scotia	3	225 00	171,565	181,342½	38,139½	143,203	.....	.....
P. E. Island	2	150 00	179,698	179,271	79,096	100,175	.....	.....
Total	28	1,850 00	11,756,015½	9,733,946	1,082,328	8,651,618	47,749,600	32,252,100
1894.								
Ontario	3	225 00	1,407,198	1,404,200¾	179,838¾	1,224,362	.....	.....
Quebec	20	1,175 00	8,620,485	7,774,882¾	698,533¾	7,076,349½	70,437,680	44,450,560
Nova Scotia	3	225 00	210,469	224,123	43,438	180,685	.....	.....
P. E. Island	2	150 00	180,191	183,506	68,049	115,457	.....	.....
Total	28	1,775 00	10,418,343	9,586,712¾	989,859¼	8,596,853½	70,437,680	44,450,560

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

for the years ended 30th June, 1893 and 1894.

CANADIAN TOBACCO MANUFACTURED.				SNUFF MANUFACTURED.						DUTY COLLECTED, INCLUDING LICENSE FEES.
Ware-housed.	At 5 cents per lb.	Paid Duty.	Warehoused.	At 25 cents per lb.	Paid Duty.	Warehoused.	At 18 cents per lb.	Paid Duty.	Warehoused.	
No.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	\$ cts.
15,497,500	387,391	330,501½	56,889½	5,325	5,325	.....	248,295	246,295	2,000	53,040 93 300,274 51 9,759 88 19,924 00
15,497,500	387,391	330,501½	56,889½	5,325	5,325	.....	248,295	246,295	2,000	382,999 32
25,987,120	322,581	281,994½	40,586½	5,025	5,020	5	241,980	241,965	15	45,184 75 301,392 76 11,084 50 17,162 25
25,987,120	322,581	281,994½	40,586½	5,025	5,020	5	241,980	241,965	15	374,824 26

E. MIALL,
Commissioner.

APPENDIX A—Continued—TOBACCO WAREHOUSE ACCOUNT.

Dr.

No. 15.—COMPARATIVE STATEMENT for the Years ended 30th June, 1893 and 1894.

Cr.

REMAINING IN WAREHOUSE FROM LAST YEAR.			PLACED IN WAREHOUSE.					PLACED IN WAREHOUSE FROM OTHER DIVISIONS.		TOTAL WEIGHTS TO BE ACCOUNTED FOR.				PROVINCES.	EX-WAREHOUSED FOR DUTY.				EX-WAREHOUSED FOR REMOVAL TO OTHER DIVISIONS.		EX-WAREHOUSED FOR EXPORTATION.				WRITTEN OFF BY AUTHORITY.	TAKEN FOR RE-WORKING.		REMAINING IN WAREHOUSE.			TOTAL WEIGHTS ACCOUNTED FOR.			
Tobacco.	Cigarettes.	Canadian Tobacco.	Tobacco.	Tobacco re-warehoused.	Cigarettes.	Snuff.	Canadian Tobacco.	Tobacco.	Canadian Tobacco.	Tobacco.	Cigarettes.	Snuff.	Canadian Tobacco.		Tobacco at 25c. per lb.	Cigarettes, at \$1.50 per M.	Canadian Tobacco, at 5c. per lb.	Duty.	Tobacco.	Canadian Tobacco.	Exported.				Tobacco.	TAKEN FOR RE-WORKING.		Tobacco.	Cigarettes.	Canadian Tobacco.	Tobacco.	Cigarettes.	Snuff.	Canadian Tobacco.
																					Tobacco.	Cigarettes.	Snuff.	Ship's Stores Tobacco.		Tobacco.	Canadian Tobacco.							
Lbs.	No.	Lbs.	Lbs.	Lbs.	No.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	No.	Lbs.	Lbs.	Lbs.	No.	Lbs.	\$ cts.	Lbs.	Lbs.	Lbs.	No.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	No.	Lbs.	Lbs.	No.	Lbs.	Lbs.		
663,759½	2,004,500	68,073½	1,336,255	7,071,985	15,497,500	56,889½	2,444,311	222,484½	17,882½	4,444,325½	17,502,000	142,845½	Ontario.....	2,976,861½	10,618,000	104,525	744,215 55	769,206	20,150	339,899	6,630,000	91,929½	10,970½	586,178½	946,103	254,000	9,467½	4,444,325½	17,502,000	142,845½			
875,708½	.....	.....	7,071,985	.....	.....	.....	222,484½	.....	.....	8,170,178	.....	.....	Quebec.....	2,842,757	.....	104,525	731,842 56	4,031,560	17,882½	339,899	.....	.....	9,859	10,970½	946,103	.....	.....	8,170,178	.....	.....		
43,040	.....	.....	7,071,985	.....	.....	.....	222,484½	.....	.....	618,542	.....	.....	New Brunswick.....	572,834½	.....	.....	143,208 67	126	.....	1,053	.....	.....	.....	44,528½	.....	.....	618,542	.....	.....	.....	
166,993	2,004,500	1,559	143,203	75	.....	.....	627,089½	.....	.....	937,360½	.....	1,559	Nova Scotia.....	755,505	.....	1,559	188,954 35	14,392½	.....	27,089½	.....	1,926	.....	137,128½	.....	.....	937,360½	.....	.....	1,559
20,003	.....	.....	100,175	.....	.....	.....	.....	.....	.....	120,178	.....	.....	P. E. Island.....	106,776	.....	.....	26,694 00	228	.....	.....	.....	116	.....	13,058	.....	.....	120,178	.....	.....	.....	
56,154	.....	.....	.....	.....	.....	.....	688,574	.....	.....	744,728	.....	.....	Manitoba.....	658,555	.....	.....	164,638 76	2,842	.....	80	.....	.....	83,251	.....	.....	744,728	.....	.....	.....	.....
22,047½	.....	.....	.....	.....	.....	.....	272,444½	.....	.....	294,492	.....	.....	British Columbia.....	237,011	.....	.....	59,252 76	12,051	.....	.....	.....	.....	45,405	.....	.....	294,492	.....	.....	.....	.....
19,719½	19,719½	Sundry Collectors.....	25	19,719½	294,492			
1,867,424½	2,004,500	69,632½	8,651,618	75	15,497,500	56,889½	4,830,405½	17,882½	15,349,523½	17,502,000	144,404½	Totals.....	8,150,300	10,618,000	106,084	2,058,806 65	4,890,405½	17,882½	388,271½	6,630,000	1,344	103,830½	10,970½	1,875,371½	254,000	9,467½	15,349,523½	17,502,000	144,404½			
586,178½	1,224,362	281	25,987,120	40,586½	2,455,052½	12,856½	4,265,592½	Ontario.....	2,984,582½	746,145 75	642,163	10,680	207,666½	10,283,180	20	2,218	34,997½	1,640	590,951½	5,265,000	27,571½	4,265,592½			
946,103	254,000	9,467½	7,076,349½	191,293½	8,214,026½	26,241,120	62,910½	Quebec.....	2,973,267	10,692,940	20,842½	760,398 45	3,978,178	12,856½	207,666½	472	10,850	1,640	1,043,593½	5,265,000	27,571½	8,214,026½	26,241,120	20	62,910½		
44,528½	180,685	517,130½	561,659	New Brunswick.....	524,606	131,151 55	37,053	561,659			
137,128½	.....	.....	115,457	.....	.....	.....	556,478½	.....	.....	874,292	.....	.....	Nova Scotia.....	716,956½	.....	.....	179,239 25	11,593	.....	37,227	.....	1,053½	.....	.....	.....	874,292	.....	.....	.....	.....
13,058	.....	.....	.....	.....	.....	.....	.....	.....	.....	128,515	.....	.....	P. E. Island.....	112,957	.....	.....	28,239 25	.....	.....	216	.....	.....	252	.....	.....	15,090	.....	.....	.....	.....
83,251	.....	.....	.....	.....	.....	.....	656,828	.....	.....	740,079	.....	.....	Manitoba.....	657,450½	.....	.....	164,362 61	4,718	.....	.....	.....	.....	.....	.....	.....	77,910½	.....	.....	.....	.....
45,405	.....	.....	.....	.....	.....	.....	278,846½	.....	.....	324,251½	.....	.....	British Columbia.....	239,300½	.....	.....	59,825 17	18,977½	.....	70	.....	.....	.....	.....	.....	60,855½	.....	.....	.....	.....
19,719½	19,719½	Sundry Collectors.....	19,719½			
1,875,371½	254,000	9,467½	8,596,853½	281	25,987,120	40,586½	4,655,629½	12,856½	15,128,135½	26,241,120	62,910½	Totals.....	8,209,120	10,692,940	20,842½	2,069,362 03	4,655,629½	12,856½	255,859½	10,283,180	20	2,690	46,099½	1,640	1,952,635½	5,265,000	27,571½	15,128,135½	26,241,120	20	62,910½		

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

E. MIALI,
Commissioner.

Inland Revenues—Excise.

APPENDIX A—Continued—RAW LEAF TOBACCO, INCLUDING STEMS, SCRAPS AND CUTTINGS.

No. 16—Return for the Year ended 30th June, 1894, and Comparative Statement for Years 1893 and 1894.

Remaining in Warehouse last year.	Placed in Warehouse.	Placed in Warehouse from other Divisions.	Total Weights to be accounted for.	INLAND REVENUE DIVISIONS.		Ex-Warehoused for Duty on Samples, &c.		Ex-Warehoused for Removal to other Divisions.	Ex-Warehouse for Exportation.	Written off by authority.	Taken for Horticultural purposes.	Ex-Warehoused for Manufactory.	Taken for Re-working.	Remaining in Warehouse.	Total Weights accounted for.
				Lbs.	1894.	Quantity.	Duty.								
	Lbs.	Lbs.	Lbs.	Lbs.	\$ cts.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
	3,147	3,147	3,147	2,936		218	859	2,288			2,288			3,147	3,147
	5,639	5,651	10,690	2,936		218	859	2,830			2,830			10,690	10,690
2,137	663	13,358	16,138	203		460		1,758			1,758			16,158	16,158
	1,708,361	3,014	1,711,395	1,758		151,481		1,542,230			1,542,230			1,711,395	1,711,395
1,166	1,532	15,610	18,308	2,834		65,900		15,474			15,474			18,308	18,308
359	98,852	9,070	108,281	8,374				30,639			30,639			108,281	108,281
1,954	7,800	1,496	11,250	2,432				6,277			6,277			11,250	11,250
		396	396					396			396			396	396
		12,288	15,162	2,874				11,871			11,871			15,162	15,162
358	2,874	3,095	3,845	392				3,453			3,453			3,845	3,845
	6,594	12,690	19,284	5,687				13,597			13,597			19,284	19,284
	17,604	597	18,201	2,492		15,112		597			597			18,201	18,201
	606		606	606										606	606
	26,582	4,052	30,634	1,689		24,384		4,551			4,551			30,634	30,634
	3,219	1,108	4,327	602		2,617		1,108			1,108			4,327	4,327
5,974	1,890,738	84,972	1,971,684	32,889		260,181		1,653,806			1,653,806			1,971,684	1,971,684
	7,825	37,981	8,065	7,825				7,825			7,825			8,065	8,065
240	1,280,750	64,979	2,079,351	186,942		490,158		190		81	753,450		240	2,079,351	2,079,351
1,153	1,564	15,011	27,967	3,390		9,566		1,564			65,794		148	67,696	67,696
	12,955	475	475	1,825				3,390			15,011			27,967	27,967
		3,824	5,649	1,825				475			3,824			5,649	5,649
	196	8,095	8,291	196				196			7,781			8,291	8,291
762,143	1,305,086	130,265	2,197,494	200,368		501,288		850,860			850,860			2,197,494	2,197,494
	7,190	8,433	15,623	436		2,791		12,396			12,396			15,623	15,623
	820	2,373	3,193	820				2,373			2,373			3,193	3,193
	6,436	9,843	16,279	5,803				10,476			10,476			16,279	16,279

APPENDIX A—Continued—RAW LEAF TOBACCO, &c.—Concluded.

No. 16.—COMPARATIVE STATEMENT for the Years ending 30th June, 1893 and 1894.

Remaining in Warehouse last year.	Placed in Warehouse.	Placed in Warehouse from other Divisions.	Total Weights to be accounted for.	INLAND REVENUE DIVISIONS.		Ex-Warehoused for Duty being Deficiencies on Samples, &c.		Ex-Warehoused for Removal to other Divisions.	Ex-Warehoused for Exportation.	Written off by authority.	Taken for Horticultural purposes.	Ex-Warehoused for Manufactory.	Taken for Re-working.	Remaining in Warehouse.	Total Weights accounted for.
				Lbs.	Lbs.	Quant.	Duty.								
768,117	3,907,812	245,470	4,221,399	7,504	9,622	174	52 20	700	427	81	3,875	6,163	214	7,504	9,622
768,117	3,907,812	245,470	4,221,399	3,854	9,584	174	52 20	4,454	981	81	3,875	4,187	665,870	4,221,399	
768,117	3,907,812	245,470	4,221,399	9,584	17,126	174	52 20	5,154	1,408	81	3,875	10,350	214	17,126	
768,117	3,907,812	245,470	4,221,399	245,470	245,470	174	52 20	245,470	765,668	81	3,875	2,540,261	665,870	4,221,399	
COMPARATIVE STATEMENT FOR THE YEARS ENDING 30TH JUNE, 1893 AND 1894.															
1893.															
9,248	1,514,387	127,452	1,651,087	1,651,087	1,651,087	802	240 60	47,331	309,578	88	232	1,287,884	236	5,974	1,651,087
712,062	1,444,051	126,112	2,282,225	2,282,225	2,282,225	802	240 60	240,680	327,166	1,908	232	949,290	236	762,143	2,282,225
.....	1,482	9,446	10,928	10,928	10,928	.....	.....	1,482	1,090	.....	.....	9,446	.....	.....	10,928
.....	2,484	2,843	5,327	5,327	5,327	.....	.....	1,394	4,319	.....	.....	2,843	.....	.....	5,327
.....	11,272	24,133	35,405	35,405	35,405	.....	.....	6,853	15,210	.....	.....	24,133	.....	.....	35,405
1,025	6,431	14,185	21,641	21,641	21,641	.....	.....	6,431	15,210	.....	.....	15,210	.....	.....	21,641
722,335	2,980,107	304,171	4,006,613	4,006,613	4,006,613	802	240 60	304,171	642,153	1,986	232	2,288,906	236	768,117	4,006,613
1894.															
5,974	1,890,738	84,972	1,971,684	1,971,684	1,971,684	.....	.....	32,869	260,181	.....	3,400	1,653,806	.....	21,408	1,971,684
762,143	1,305,086	130,265	2,197,494	2,197,494	2,197,494	174	52 20	200,368	501,288	81	475	860,860	.....	644,248	2,197,494
.....	7,190	8,433	15,623	15,623	15,623	.....	.....	436	2,791	.....	.....	12,396	.....	.....	15,623
.....	890	2,373	3,193	3,193	3,193	.....	.....	820	.....	.....	.....	2,373	.....	.....	3,193
.....	6,486	9,843	16,279	16,279	16,279	.....	.....	5,803	10,476	.....	.....	10,476	.....	.....	16,279
.....	7,542	9,584	17,126	17,126	17,126	.....	.....	5,154	1,408	.....	.....	10,350	.....	214	17,126
768,117	3,207,812	245,470	4,221,399	4,221,399	4,221,399	174	52 20	245,470	765,668	81	3,875	2,540,261	.....	665,870	4,221,399

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

E. MIALI,
Commissioner.

Inland Revenues—Excise.

APPENDIX A—Continued—CANADA TWIST TOBACCO.

No. 17.—STATEMENT of Revenue collected from Canada Twist Tobacco for the year ended June 30th, 1894.

INLAND REVENUE DIVISIONS.	LICENSES.		Canada Twist, at 5 cts. per lb.	Duty collected including Fees.
	No.	Fees.		
		\$	Lbs.	\$ cts.
Ottawa	2	4	360	22 00
Windsor	1	2	355	19 75
Total	3	6	715	41 75
Joliette	35	51	25,307	1,316 35
Montreal	63	122	40,233	2,133 65
St. Johns	1	2	.....	2 00
Terrebonne	66	132	21,855	1,224 75
Total	165	307	87,395	4,676 75
Grand Total	168	313	88,110	4,718 50

COMPARATIVE STATEMENT for years ended 30th June, 1893 and 1894.

YEARS.	PROVINCES.	LICENSES.		Canada Twist, at 5 cts. per lb.	Duty Collected including Fees.
		No.	Fees.		
			\$	Lbs.	\$ cts.
1893	Ontario	3	6	1,310½	71 53
	Quebec	81	156	77,117	4,011 85
	Total	84	162	78,427½	4,083 38
1894	Ontario	3	6	715	41 75
	Quebec	165	307	87,395	4,676 75
	Total	168	313	88,110	4,718 50

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

APPENDIX A—Continued—CIGARS.

No. 18.—RETURN of Manufactures

INLAND REVENUE DIVISIONS.	LICENSES.		Total weight of Raw Leaf and other material actually used in production	De-ficiencies paying duty.	CIGARS AT \$7 PER THOUSAND.	
	No.	Amount.			Produced.	Paid Duty
<i>Ontario.</i>		\$ cts.	Lbs.	No.	No.	No.
Belleuille.....	1	75 00	2,117			
Brantford.....	8	562 50	52,331			
Guelph.....	10	675 00	56,985		3,000	3,000
Hamilton.....	14	1,050 00	71,571	21,784	1,002	1,002
Kingston.....	3	225 00	48,738		1,650	1,650
London.....	15	1,087 50	384,788			
Ottawa.....	3	187 50	6,538			
Owen Sound.....	3	187 50	7,120			
Perth.....	*		9,305½			
Peterborough.....	1	75 00	3,545			
Prescott.....	3	225 00	19,005			
St. Catharines.....	5	337 50	29,164			
Stratford.....	2	150 00	23,751	390		
Toronto.....	15	1,087 50	100,336		1,020	1,020
Windsor.....	4	262 50	25,471			
Total.....	87	6,187 50	840,765½	22,174	6,672	6,672
<i>Quebec.</i>						
Montreal.....	35	2,587 50	937,385½	18,309	12,840	12,840
Quebec.....	4	337 50	33,128	1,190		
Sherbrooke.....	3	200 00	68,930½			
St. Johns.....	1	75 00	61,345			
Three Rivers.....	3	162 50	15,675			
Total.....	46	3,362 50	1,116,523¾	19,499	12,840	12,840
St. John, N.B.....	2	150 00	39,505			
Halifax, N.S.....	2	150 00	11,253			
Winnipeg.....	3	225 00	32,881			
Vancouver.....	6	450 00	15,587	400		
Victoria.....	11	825 00	27,727	2,550		
Grand Total.....	157	11,350 00	2,084,242¼	44,623	19,512	19,512

* Paid in June, 1893.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

for the Year ended 30th June, 1894.

CIGARS AT \$6 PER THOUSAND.			Free and Written off by Authority.	CANADIAN CIGARS AT \$3 PER THOUSAND.			Total Duty collected, including License Fees.
Produced.	Paid Duty.	Warehoused.		Produced.	Paid Duty	Ware- housed.	
No.	No.	No.	No.	No.	No.	No.	\$ cts.
116,950	116,950						776 70
3,261,450	1,786,300	1,475,150					11,280 30
3,600,375	1,789,400	1,810,975					11,432 40
4,155,855	2,227,430	1,928,425					14,552 30
3,109,675	1,301,425	1,808,250					8,045 10
23,070,165	13,494,950	9,575,215					82,057 20
451,160	183,935	267,225					1,291 11
416,850	416,850						2,688 60
524,485	249,710	274,775					1,498 26
221,850	221,850						1,406 10
1,083,500	711,350	372,150					4,493 10
1,707,975	1,152,875	555,100					7,254 75
1,175,500	965,600	209,900					5,945 94
5,823,110	2,913,210	2,909,900					18,573 90
1,464,165	789,990	674,175					5,002 44
50,183,065	28,321,825	21,861,240					176,298 20
52,512,275	27,125,330	25,386,945					165,539 21
1,858,760	1,388,585	470,175					8,676 15
3,419,995	1,588,685	1,831,310		764,090	563,240	200,850	11,421 83
3,638,315	2,609,295	1,029,020					15,730 77
572,710	219,685	353,025		386,150	386,150		2,639 06
62,002,055	32,931,580	29,070,475		1,150,240	949,390	200,850	204,007 02
2,291,165	1,216,130	1,075,035					7,446 78
572,550	200,600	371,950					1,353 60
1,733,700	192,125	1,541,575					1,377 75
854,250	{ +3,000	18,900					5,446 50
1,538,600	{ 832,350	205,700	875				8,832 45
	{ 1,332,025						
119,175,385	+3,000 65,026,635	54,144,875	875	1,150,240	949,390	200,850	404,762 30

+ Destroyed by fire.

E. MIALL,
Commissioner.

APPENDIX A—Continued—CIGARS.

No. 19.—COMPARATIVE STATEMENT of Manufactures

PROVINCES.	LICENSESES.		Total weight of Leaf and other material actually used in production	Deficiencies. Paying Duty.	CIGARS AT \$7 PER THOUSAND.	
	No.	Amount.			Produced.	Paid Duty.
1893.		8 cts.	Lbs.	No.	No.	No.
Ontario.....	83	6,075 00	773,149	{ *450 4,881 }	8,700	8,700
Quebec.....	40	2,875 00	1,087,315	21,278	750	750
New Brunswick.....	2	150 00	32,421	.....	.....	.....
Nova Scotia.....	3	187 50	12,603	.....	.....	.....
Manitoba.....	3	225 00	28,828	2,300	.....	.....
British Columbia.....	15	1,125 00	53,789	1,850	.....	.....
Totals.....	146	10,637 50	1,988,103	*450 30,309	9,450	9,450
1894.						
Ontario.....	87	6,187 50	840,765½	22,174	6,672	6,672
Quebec.....	46	3,362 50	1,116,523¾	19,499	12,840	12,840
New Brunswick.....	2	150 00	39,505	.....	.....	.....
Nova Scotia.....	2	150 00	11,253	.....	.....	.....
Manitoba.....	3	225 00	32,881	.....	.....	.....
British Columbia.....	17	1,275 00	43,314	2,950	.....	.....
Totals.....	157	11,350 00	2,084,242½	44,623	19,512	19,512

*At \$7 per thousand.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

for the Years ended 30th June, 1893 and 1894.

CIGARS AT \$6 PER THOUSAND.				CANADIAN CIGARS AT \$3 PER THOUSAND.			Total Duty collected, including Fees.
Produced.	Paid Duty.	Warehoused.	Written off by Authority	Pro- duced.	Paid Duty.	Ware- housed.	
No.	No.	No.	No.	No.	No.	No.	\$ cts.
47,279,445	29,410,405	17,869,040	.....	.....	.....	.....	182,630 76
58,221,445	30,095,530	28,068,285	57,630	2,007,540	1,928,680	78,860	189,367 14
1,852,025	1,136,100	715,925	.....	.....	.....	.....	6,966 60
621,360	125,480	495,880	.....	.....	.....	.....	940 38
1,527,250	260,075	1,267,175	.....	.....	.....	.....	1,799 25
2,821,975	2,488,425	333,550	.....	.....	.....	.....	16,066 65
112,323,500	63,516,015	48,749,855	57,630	2,007,540	1,928,680	78,860	397,770 78
50,183,065	28,321,825	21,861,240	.....	.....	.....	.....	176,298 20
62,002,055	32,931,580	29,070,475	.....	1,150,240	949,390	200,850	204,007 02
2,291,165	1,216,130	1,075,035	.....	.....	.....	.....	7,446 78
572,550	200,600	371,950	.....	.....	.....	.....	1,353 60
1,733,700	192,125	1,541,575	.....	.....	.....	.....	1,377 75
2,392,850	{ *3,000 } 2,164,375	224,600	875	.....	.....	.....	14,278 95
119,175,385	*3,000 65,026,635	54,144,875	875	1,150,240	949,390	200,850	404,762 30

*Destroyed by fire.

E. MIALI,
Commissioner.

APPENDIX A—Continued—CIGAR WAREHOUSE ACCOUNT.

DR.

No. 20.—RETURN for the Year

REMAINING IN WAREHOUSE FROM LAST YEAR.		PLACED IN WAREHOUSE.		Placed in Warehouse from other Divisions.	Imported.	TOTAL NUMBER TO BE ACCOUNTED FOR.		INLAND REVENUE DIVISIONS.
Foreign.	Canadian.	Foreign.	Canadian.			Foreign.	Canadian.	
No.	No.	No.	No.	No.	No.	No.	No.	
255,400		1,475,150				1,730,550		Brantford
135,600		1,810,975				1,946,575		Guelph
464,925		1,928,425				2,393,350		Hamilton
501,600		1,808,250				2,309,850		Kingston
1,804,200		9,575,215				11,379,415		London
68,050		267,225				335,275		Ottawa
138,600				403,000		541,600		Owen Sound
		274,775				274,775		Perth
46,300		372,150				418,450		Prescott
127,650		555,100		40,000		722,750		St. Catharines
31,100		209,900				241,000		Stratford
1,523,650		2,909,900		40,050		4,473,600		Toronto
196,100		674,175				870,275		Windsor
5,293,175		21,861,240		482,050		27,637,465		Ontario
5,552,380		25,386,945		40,000	8,000	30,987,325		Montreal
182,795		470,175		10,000		662,970		Quebec
358,175	3,050	1,831,310	200,850			2,189,485	203,900	Sherbrooke
410,350		1,029,020				1,439,370		St. Johns
60,250		353,025				413,275		Three Rivers
6,563,950	3,050	29,070,475	200,850	50,000	8,000	35,692,425	203,900	Quebec
801,225		1,075,035		8,000		1,884,260		St. John, N.B.
253,925		371,950				625,875		Halifax, N.S.
179,975		1,541,575				1,721,550		Winnipeg, Man.
10,000		18,900		100,000		128,900		Vancouver, } B. C. {
101,400		205,700				307,100		Victoria, }
13,203,650	3,050	54,144,875	200,850	641,050	8,000	67,997,575	203,900	Totals

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

ended 30th June, 1894.

EX-WAREHOUSED FOR EXCISE DUTY.			EX-WAREHOUSED FOR REMOVAL TO OTHER DIVISIONS.		EX-WAREHOUSED FOR EXPORTATION.	REMAINING IN WAREHOUSE.		TOTAL NUMBER ACCOUNTED FOR.	
At \$6 per M.	At \$3 per M.	Duty.	Foreign.	Cana- dian.		Foreign.	Cana- dian.	Foreign.	Canadian.
No.	No.	\$ cts.	No.	No.	No.	No.	No.	No.	No.
1,350,325		8,101 95				380,225		1,730,550	
1,453,975		8,723 85	50,000		7,000	442,600		1,946,575	
1,793,325		10,759 95	16,000			583,025		2,393,350	
1,733,050		10,398 30			1,500	576,800		2,309,850	
8,854,695		53,128 17	66,000			2,457,220		11,379,415	
258,615		1,551 69				76,660		335,275	
355,850		2,135 10	20,000			165,750		541,600	
136,875		821 25				137,900		274,775	
298,900		1,793 40				119,550		418,450	
499,100		2,994 60	50			223,600		722,750	
169,000		1,014 00				72,000		241,000	
3,378,275		20,269 65	10,000			1,085,325		4,473,600	
545,850		3,275 10				324,425		870,275	
20,827,835		124,967 01	156,050		8,500	6,645,080		27,637,465	
22,442,505		134,655 03	415,000		356,325	7,773,495		30,987,325	
475,565		2,853 39	10,000		50,000	177,405		662,970	
1,597,435	203,900	10,196 31	20,000			522,050		2,189,485	203,900
853,370		5,120 22	40,000			546,000		1,439,370	
241,575		1,449 45				171,700		413,275	
25,610,450	203,900	154,274 40	485,000		406,325	9,190,650		35,692,425	203,900
647,760		3,886 56			74,000	1,162,500		1,884,260	
461,500		2,769 00				164,375		625,875	
1,322,025		7,932 15				399,525		1,721,550	
40,250		241 50				88,650		128,900	
283,600		1,701 60				23,500		307,100	
49,193,420	203,900	295,772 22	641,050		488,825	17,674,280		67,997,575	203,900

E. MIALI,
Commissioner.

APPENDIX A—Continued—CIGAR WAREHOUSE ACCOUNT.

DR.

No. 21.—COMPARATIVE STATEMENT for the

REMAINING IN WAREHOUSE FROM LAST YEAR.		PLACED IN WAREHOUSE.		Placed in Warehouse from other Divisions.	Imported.	TOTAL NUMBER TO BE ACCOUNTED FOR.		INLAND REVENUE DIVISIONS.
Foreign.	Canadian.	Foreign.	Canadian.			Foreign.	Canadian.	
No.	No.	No.	No.	No.	No.	No.	No.	1893.
3,861,855		17,869,040		994,450		22,725,345		Ontario
8,553,370	126,990	28,068,285	78,860	133,375	10,000	36,765,030	205,850	Quebec
1,090,450		715,925		20,000		1,826,375		New Brunswick.....
337,480		495,880				833,360		Nova Scotia.....
84,875		1,267,175				1,352,050		Manitoba
128,150		333,550		100,000		561,700		British Columbia....
14,056,180	126,990	48,749,855	78,860	1,247,825	10,000	64,063,860	205,850	.....Totals.....
								1894.
5,293,175		21,861,240		483,050		27,637,465		Ontario.....
6,563,950	3,050	29,070,475	200,850	50,000	8,000	35,692,425	203,900	Quebec
801,225		1,075,035		8,000		1,884,260		New Brunswick.....
253,925		371,950				625,875		Nova Scotia.....
179,975		1,541,575				1,721,550		Manitoba
111,400		224,600		100,000		436,000		British Columbia....
13,203,650	3,050	54,144,875	200,850	641,050	8,000	67,997,575	203,900	.....Totals.....

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

Years ended 30th June, 1893 and 1894.

Cr.

EX-WAREHOUSED FOR DUTY.			Ex-warehoused for Removal to other Divisions.	Ex-warehoused for Expor- tation.	Free.	REMAINING IN WAREHOUSE.		TOTAL NUMBER ACCOUNTED FOR.	
At \$6 per M.	Canadian, at \$3 per M.	Duty.				Foreign.	Canadian.	Foreign.	Canadian.
No.	No.	\$ cts.	No.	No.	No.	No.	No.	No.	No.
17,342,020		104,052 12	81,200	5,000	3,950	5,293,175		22,725,345	
28,505,825	202,800	171,643 35	1,166,625	437,810	90,820	6,563,950	3,050	36,766,080	205,850
933,150		5,598 90		92,000		801,225		1,826,275	
577,735		3,466 41		1,700		253,925		833,360	
1,172,075		7,032 45				179,975		1,352,050	
450,300		2,701 80				111,400		561,700	
48,981,105	202,800	294,495 03	1,247,825	536,510	94,770	13,203,650	3,050	64,063,960	205,850
20,827,835		124,967 01	156,050	8,500		6,645,080		27,637,465	
25,610,450	203,900	154,274 40	485,000	406,325		9,190,650		35,692,425	203,900
647,760		3,886 56		74,000		1,162,500		1,884,260	
461,500		2,769 00				164,375		625,875	
1,322,025		7,932 15				399,525		1,721,550	
323,850		1,943 10				112,150		436,000	
49,193,420	203,900	295,772 22	641,050	488,825		17,674,280		67,997,575	203,900

1893.

1894.

Total duty collected, Ex-factory and Ex-warehouse, including licenses.. \$692,265 81 \$700,534 52

E. MIALL,
Commissioner.

APPENDIX A—Continued—INSPECTION OF PETROLEUM.

No. 22.—RETURN OF FEES for the inspection of Petroleum for the Year ended 30th June, 1894.

DIVISIONS.	PACKAGES.						FEES COLLECTED.
	At 10 cts.		At 5 cts.		At 2½ cts.		
	Canadian.	Imported.	Canadian.	Imported.	Canadian.	Imported.	
Belleville.....	1,006	753					\$ cts. 175 90
Brantford.....		45					4 50
Cornwall.....		123					12 30
Guelph.....		1					0 10
Hamilton.....	7,984	3,923					1,190 70
Kingston.....	15,011	2,266					1,727 70
London.....	109,384	3,552	12		48,764		12,513 30
Ottawa.....	16,626	4,517					2,114 30
Owen Sound.....		7					0 70
Perth.....	876	1,165					204 10
Peterborough.....	5,284	2,498					778 20
Port Arthur.....	1,100	263			196		141 23
Prescott.....	834	487		2		9	132 45
St. Catharines.....	1,457						145 70
Stratford.....	2,417	510			2,430		353 46
Toronto.....	35,896	20,618					5,651 40
Windsor.....		2,195		21		59	222 38
Ontario.....	197,875	42,923	12	23	51,390	68	25,368 42
Montreal.....	42,408	21,500		300		868	6,427 51
Quebec.....	44	451					49 50
Three Rivers.....	474	583					105 70
Quebec.....	42,926	22,534		300		868	6,582 71
St. John, N.B.....	8,200	26,677		9		71	3,490 03
Cape Breton.....		49					4 90
Halifax.....	970	12,792		4,515			1,601 95
Pictou.....		1,059				20	106 40
Nova Scotia.....	970	13,900		4,515		20	1,713 25
Charlottetown, P. E. I.....		3,700					370 00
Winnipeg, Man.....	1,629	9,856				6,000	1,298 50
Vancouver.....	1,099					40,930	1,133 15
Victoria.....	612					50,965	1,312 83
British Columbia.....	1,711					90,995	2,445 98
Totals.....	251,600	121,301	12	4,847	51,390	98,022	41,268 89

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

E. MIALI,
Commissioner.

Inland Revenues—Excise.

APPENDIX A—Continued—INSPECTION OF PETROLEUM.

COMPARATIVE STATEMENT for the Years ended 30th June, 1893 and 1894.

YEARS.	PROVINCES.	PACKAGES.				FEES COLLECTED.
		At 30 cts.	At 10 cts.	At 5 cts.	At 2½ cts.	
						\$ cts.
1893.....	Ontario.....	25,255	195,887	335	44,548	28,295 62
	Quebec.....	16,651	46,711			9,666 40
	New Brunswick.....		6,845			684 50
	Manitoba.....	8,245		13,036		3,125 30
	British Columbia.....	639		87,591		4,571 25
	Totals.....		50,790	249,443	100,962	44,548	46,343 07
1894.....	Ontario.....		240,798	35	51,458	25,368 42
	Quebec.....		65,460	300	868	6,582 71
	New Brunswick.....		34,877	9	71	3,499 03
	Nova Scotia.....		11,870	4,515	20	1,713 25
	Prince Edward Island.....		3,700			379 00
	Manitoba.....		11,485		6,000	1,298 50
	British Columbia.....		1,711		90,995	2,445 98
	Totals.....			372,901	4,859	149,412	41,268 89

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

APPENDIX A—Continued—MANUFACTURES IN BOND.

No. 23.—RETURN of Manufactures for the Year ended 30th June, 1894.

REVENUE DIVISIONS.	Number of Licenses.	License Fees.	MATERIALS USED.				PRODUCTS OF MANUFACTURES.		Duty Collected on Vinegar Ex-Manufactory.		ENTERED FOR WAREHOUSE.		Total Duties collected including License Fees.
			Proof Spirits.	Beer, Wine and Cider.	Other Materials.	Vinegar at 4, 6 and 8 cts. per Gallon.	Crude Fulminate.	Galls.	Lbs.	Galls.	\$ cts.	Vinegar.		Lbs.
Hamilton	2	100	25,130 58	328 55		125,380 67		18,676 90	830 42	106,703 77		930 42	
Kingston	1	50	7,816 11	183 62		38,681 83		25,527 53	1,180 67	13,054 30		1,230 67	
Prescott	1	300	30,241 55	{ 145,534 +14,565 }			18,590				18,590	300 00	
Toronto	4	200	54,771 59	1,511 59	169 50	311,241 23		311,241 23	15,241 49			15,441 49	
Windsor	1	50			±8,000				66 80			116 80	
Montreal	5	225	46,923 38	1,835 20		227,729 05		208,893 46	10,159 56	18,835 59		10,384 56	
Quebec	1	50	12,339 04	363 00		59,165 51		55,771 43	2,662 93	3,394 08		2,712 93	
Sherbrooke	1	300	14,567 57	{ *60,774 +7,625 }			9,058				9,058	300 00	
Sorel	1	25	408 21	14 00				450 05	32 63			57 63	
Terrebonne	1	50	4,291 32									50 00	
Totals	18	1,350	196,489 35	4,235 87 *206,308 +22,210	169 50 ±8,000	762,548 34	27,648	620,560 00	30,174 50	141,987 74	27,648	31,524 50	

*Lbs. of nitric acid.	†Lbs. of mercury.	‡Lbs. of malt.	
Spirits used in the manufacture of vinegar			151,680 23 galls.
do do crude fulminate.			44,809 12 do
		Total	196,489 35 do

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

E. MIALL,
Commissioner.

Inland Revenues—Excise.

APPENDIX A—Continued—MANUFACTURES IN BOND.
 No. 24.—COMPARATIVE STATEMENT OF Manufactures for the Years ended 30th June, 1893 and 1894.

PROVINCES.	Number of Licenses.		MATERIALS USED.					PRODUCTS OF MANUFACTURES.		Duty Collected on Vinegar Ex-Manufactory.		ENTERED FOR WAREHOUSE.		Assessment.	Total Duties collected, including License Fees.
	\$		Proof Spirits.	Beer, Wine and Cider.	Vinegar.	Other Materials.	Vinegar.	Crude Fulminate	Galls.	\$ cts.	Galls.	Lbs.	\$ cts.			$ cts.
1893.															
Ontario.....	9	700	146,982 30	2,000 20	54 09	{ *234 067 +24 040 }	545,924 81	30,873	409,762 53	16,390 49	136,162 28	30,873	.....	17,090 49
Quebec.....	6	400	85,191 81	1,639 20	.....	{ *120 889 +14 810 }	316,305 72	17,571	257,060 79	10,282 36	59,244 93	17,571	.....	10,682 36
New Brunswick.	1	50	139 59	.....	.....	{ .....	705 47	.....	705 47	28 22	.....	.....	26 96	105 18
Totals.	16	1150	232,313 70	3,639 40	54 09	{ *354 965 +38 850 }	862,936 00	48,444	657,528 79	26,701 07	195,407 21	48,444	26 96	27,878 03	
1894.															
Ontario.....	9	700	117,959 83	2,023 67	.....	{ *145 534 +14 585 +8 000 }	475,203 73	18,590	355,445 66	17,319 38	119,758 07	18,590	.....	18,019 38
Quebec.....	9	650	78,529 52	2,212 20	.....	{ *60 774 +7 625 }	287,344 61	9,058	265,114 94	12,855 12	22,229 67	9,058	.....	13,505 12
Totals.	18	1350	196,489 35	4,235 87	.....	{ *205 308 +22 210 +8 000 }	762,548 34	27,648	620,560 60	30,174 50	141,987 74	27,648	.....	31,524 50

* Nitric Acid. † Mercury. ‡ Malt.

INLAND REVENUE DEPARTMENT,
 OTTAWA, 20th September, 1894.

E. MIALI,
 Commissioner.

APPENDIX A—Continued—MANUFACTURES IN BOND.

No. 25.—STATEMENT showing the Transactions in Vinegar, in the bonded Manufactories, in the Dominion of Canada, during the Year ended 30th June, 1894.

On hand, 1st July, 1893.	Manufactured during the year.	Brought in.	Totals.	DIVISIONS.	Removed from Factory.	On hand, 30th June, 1894.	Totals.
Galls.	Galls.	Galls.	Galls.		Galls.	Galls.	Galls.
52,143.38	125,360.67	5,111.48	182,635.53	.....Hamilton.....	112,997.88	69,687.70	182,635.53
11,295.73	36,581.83	.....	49,877.56	.....Kingston.....	39,184.77	10,692.79	49,877.56
.....	311,241.23	.....	311,241.23	.....Toronto.....	311,241.23	.....	311,241.23
23,461.55	227,729.05	13,744.70	264,935.30	.....Montreal.....	243,527.08	21,408.22	264,935.30
.....	59,165.51	.....	59,165.51	.....Quebec.....	55,771.48	3,394.06	59,165.51
.....	450.05	.....	450.05	.....Sorel.....	217.64	232.41	450.05
86,900.66	762,548.34	18,856.18	868,305.18	.....Totals.....	762,939.98	105,365.20	868,305.18

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

E. MIALL,
Commissioner.

Inland Revenues—Excise.

APPENDIX A—Continued—MANUFACTURES IN BOND.

No. 26.—WAREHOUSE Return for the Year ended 30th June, 1894.

REMAINING IN WAREHOUSE FROM LAST YEAR.		PLACED IN WAREHOUSE.		TOTALS.		DIVISIONS.		ENTERED FOR CONSUMPTION.		EXPORTED.		REMAINING IN WAREHOUSE.		TOTALS.	
Vinegar.	Crude Fulminate.	Vinegar.	Crude Fulminate.	Vinegar.	Crude Fulminate.	Vinegar.	Crude Fulminate.	Vinegar.	Duty.	Vinegar.	Crude Fulminate.	Vinegar.	Crude Fulminate.	Vinegar.	Crude Fulminate.
Galls.	Lbs.	Galls.	Lbs.	Galls.	Lbs.	Galls.	Lbs.	Galls.	\$ cts.	Galls.	Lbs.	Galls.	Lbs.	Galls.	Lbs.
49,926 84		106,703 77		156,630 61		Hamilton		120,521 36	4,953 68			36,109 25		156,630 61	
9,515 17		13,054 30		22,569 47		Kingston		13,294 05	563 71			9,275 42		22,569 47	
7,372 29			18,590		18,590	Prescott					18,590				18,590
		18,435 59		26,207 88		Montreal		11,806 89	649 57	79 14		14,322 86		26,207 88	
		3,394 08		3,394 08		Quebec						3,394 08		3,394 08	
	7,208		9,058		16,266	Sherbrooke					16,266				16,266
66,814 30	7,208	141,987 74	27,648	208,802 04	34,856	Totals		145,621 30	6,166 96	79 14	34,856	63,101 60	208,802 04	34,856	34,856

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

E. MIALI,
Commissioner.

APPENDIX A—Continued—MANUFACTURES IN BOND.

No. 27.—COMPARATIVE Warehouse Return for the Years ended 30th June, 1893 and 1894.

REMAINING IN WAREHOUSE FROM LAST YEAR.		PLACED IN WAREHOUSE.		TOTALS.		PROVINCES.		ENTERED FOR CONSUMPTION.		EXPORTED.		REMAINING IN WAREHOUSE.		TOTALS.	
Vinegar.	Crude Fulminate.	Vinegar.	Crude Fulminate.	Vinegar.	Crude Fulminate.			Vinegar.	Duty.	Vinegar.	Crude Fulminate.	Vinegar.	Crude Fulminate.	Vinegar.	Crude Fulminate.
Gallons.	Lbs.	Gallons.	Lbs.	Gallons.	Lbs.	1893.		Gallons.	\$ cts.	Gallons.	Lbs.	Gallons.	Lbs.	Gallons.	Lbs.
47,604.88	30,873	136,162.28	30,873	183,766.66	30,873	Ontario	124,324.65	4,972.96	30,873	59,442.01	7,208	183,766.66	30,873	179,200.08	18,590
28,268.93	17,571	59,244.93	17,571	87,543.86	17,571	Quebec	79,980.37	3,199.22	10,363	7,372.29	7,208	87,543.86	17,571	29,601.96	16,266
75,903.31	48,444	195,407.21	48,444	271,310.52	48,444	Totals	204,305.02	8,172.18	41,236	66,814.30	7,208	271,310.52	48,444	208,802.04	34,856
59,442.01	18,590	119,758.07	18,590	179,200.08	18,590	1894.		133,815.41	5,517.39	18,590	16,266	179,200.08	18,590	179,200.08	18,590
7,372.29	9,058	22,229.67	9,058	29,601.96	16,266	Ontario	11,805.89	649.57	79.14	16,266	17,716.93	29,601.96	16,266	29,601.96	16,266
66,814.30	27,648	141,987.74	27,648	208,802.04	34,856	Totals	145,621.30	6,166.96	79.14	34,856	63,101.60	208,802.04	34,856	208,802.04	34,856

1893.		1894.	
Total duty collected, ex-Manufactory and ex-Warehouse.	\$24,900.21	\$36,341.46	
do on Licenses.	1,150.00	1,350.00	
	\$26,050.21	\$37,691.46	

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

E. MIALI,
Commissioner.

Inland Revenues—Excise.

APPENDIX A—Continued—METHYLATED SPIRITS.

No. 28 (A).—STATEMENT showing quantity of Raw Material on hand at beginning and end of year, and brought in and used during the Year 1893-94.

Names of Articles.	Stock on hand, 1st July, 1893.	Brought in during the year.	Total to be accounted for.	Used in manufacture of Methylated Spirits.	Sold or Loss by Leakage.	Stock on hand, 30th June, 1894.	Total accounted for.
	Pr'f galls.	Pr'f galls.	Pr'f galls.	Pr'f galls.	Pr'f galls.	Pr'f galls.	Pr'f galls.
Alcohol.....	4,089·86	92,120·74	96,210·60	93,351·62	20·13	2,838·85	96,210·60
Woodnaphtha.	1,037·81	41,707·80	42,745·61	37,727·68	87·95	9,929·98	42,745·61

(B).—STATEMENT showing quantity of Raw Material used and Methylated Spirits produced therefrom.

Alcohol used, Statement (A.)	Wood Naphtha used, Statement (A.)	Methylated Spirits used, Statement (C.)	Total to be accounted for.	Methylated Spirits produced.	Loss in Manufacture.		Total accounted for.
Pr'f galls.	Pr's galls.	Pr'f galls.	Pr'f galls.	Pr'f galls.	Pr'f galls.	p. c.	Pr'f galls.
93,351·62	32,727·68	.....	126,079·30	125,057·49	1,021·81	·81	126,079·30

(C).—STATEMENT showing quantity of Methylated Spirits on hand at beginning and end of year, and brought in, sold and otherwise accounted for during the year.

Stock on hand.	Manufactured as above, Statement (B).	Brought in.	Total to be accounted for.	Sold.	Used in Methylated Spirits Wareh'se.	Re-used in manufacture of Methylated Spirits.	Stock on hand.	Total accounted for.
Pr'f galls.	Pr'f galls.	Pr'f galls.	Pr'f galls.	Pr'f galls.	Pr'f galls.	Pr'f galls.	Pr'f galls.	Pr'f galls.
2,242·55	125,057·49	....	127,300·04	123,443·56	.....	.....	3,856·48	127,300·04

E. MIALI,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

APPENDIX A—Continued.

No. 29.—STATEMENT of Lumber measured, culled and counted, through the Office of the Supervisor of Cullers at the Port of Quebec, during the Year ended 30th June, 1894.

Pieces.	Description of Timber.	Measured, culled and counted.	Tons Standard.	Rates.			Total accrued.
				Office Fees.	Cullers' Fees.	Total Fees.	
			Tons. Pts.	Cts.	Cts.	Cts.	\$ cts.
49,611	Waney white pine	Stringed	73,586 04				
4,704	do ash	do	3,203 00				
2,081	do birch	do	1,118 03				
128	do maple	do	156 24				
140	do whitewood	do	187 04				
8	do walnut	do	6 13				
56	do cherry	do	20 36				
2	do butternut	do	1 11				
1	do oak	do	1 26				
405	do hickory	do	421 00				
			78,702 01	7 1/2			5,902 65
33,097	White pine	Measured	36,608 16	5			1,830 42
7,461	Red pine	do	7,482 13				
20,227	Oak	do	33,172 28				
9,701	Elm	do	11,389 26				
67	Ash	do	36 21				
7,379	Birch	do	3,626 25				
1	Maple	do	0 37				
19	Tamarac	do	17 14				
1	Spruce	do	0 26				
181	Hickory	do	203 35				
			55,840 20	6 1/2			3,685 47

Inland Revenues—Excise.

323 Hemlock	Called	242 15	12 7/8	29 56	29 56
Deduct for fractions				11,448 10	11,448 10
Total				0 64	0 64
				11,447 46	11,447 46

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

APPENDIX A—Continued.

No. 30.—STATEMENT of Lumber measured, culled and counted, through the Office of the Supervisor of Cullers, at the Ports of Montreal, Lachine and Sorel, during the Year ended 30th June, 1894.

Pieces.	Description of Timber.	Measured, culled and counted.	Tons, Standard.	Rate.	Office Fees.	Cullers' Fees.	Total accrued.
			Tons. Pts.	Cents.	\$ cts.	\$ cts.	\$ cts.
2,498	Square pine.	Measured.....	1,677 22				
1,027	Flat pine.....	do	1,060 22				
2,000	Round pine.....	do	1,330 23				
			4,068 27	5			203 44
2,492	Flat tamarack.....	do	1,169 27				
1,558	Square tamarack.....	do	796 16				
			1,966 03	6½			129 76
2,574	Flat tamarack.....	do	1,634 00				
1,902	Flat pine.....	do	1,191 28				
821	Round pine.....	do	634 02				
			3,459 30	80			110 76
132	Waney ash.....	do	114 03				
72	Round pine.....	do	50 00				
			164 03	6½			10 17
31	Waney pine.....	Stringed.....	44 24	7½			3 35
15,102	Total.....						457 48

E. MIALI,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

APPENDIX A—Continued.

No. 31.—STATEMENT of Lumber measured, culled and counted, through the Office of the Deputy Supervisor of Cullers, at the Port of Three Rivers, during the Year ended 30th June, 1894.

Pieces.	Description of Timber.	Measured, culled and counted.	Tons Standard.	Rate.	Cullers' Fees.	Office Fees.	Total accrued.
14,200	Spruce deals	Culled	14,000	Cents. 60	\$ cts. 71 00	\$ cts. 14 20	\$ cts. 85 20

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

E. MIALL,
Commissioner.

APPENDIX

DR.

No. 32.—HYDRAULIC and other Rents, &c.,

Balances due on 1st July, 1893.		Rents and Interest accrued up to 30th June, 1894.		Totals.	Number.	Location.	Original Lessees.	Present Occupants.
\$	cts.	\$	cts.	\$	cts.			
100 00		200 00		300 00	1	Ottawa River...		J. R. Booth
50 00		100 00		150 00	2	do	Thompson & Perkins	do
		300 00		300 00	3	do	Lyman Perkins	do
		300 00		300 00	4	do	Jno. McKay & Co.	R. Blackburn <i>et al.</i>
		100 00		100 00	5	do	J. & J. Petrie.	Mrs. M. Petrie.
		100 00		100 00	6	do	P. H. & L. R. Church.	The Chaudières Electric Light Co.
		300 00		300 00	7	do		Ottawa Electric Ry. Co.
		400 00		400 00	8	do	Perley & Pattee	Perley & Pattee.
		100 00		100 00	9	do	J. M. Currier	N. S. Blaisdell.
		600 00		600 00	10	do	Harris, Bronson & Co.	The Bronson & Weston Lumber Co.
		200 00		200 00	11	do	Levi Young	Ottawa Electric Ry. Co.
		104 00		104 00	12	do		J. R. Booth
		20 00		20 00	13	do		Bronson & Weston
		100 00		100 00	14	do		do
96 00		96 00		192 00	15	do		J. R. Booth
		8 00		8 00	16	do	J. M. Coutlee.	Mary Conroy
570 84				570 84	17	do		Jno. Rochester
25 00		25 00		50 00	18	do		Nérée Tétreau
200 00				200 00	19	do	Hon. J. Skead	
96 00				96 00	20	do	do	
		1 00		1 00	21	do	G. A. Grier	Pierce & Co
740 00		40 00		780 00	22	do		D. Carmichael
380 00				380 00	23	do		John Rankin
		150 00		150 00	24	do	J. R. Booth.	
10 00		5 00		15 00	25	do	Colin Dewar	
		50 00		50 00	26	do	Bronson & Weston	
		1 00		1 00	1	St. Lawrence R.	Que. Har. Commissioners	
		25 00		25 00	2	do	Rich. and Ont. Nav. Co.	
1 00		1 00		2 00	3	Corp. of Quebec		
		5 00		5 00	4	Richibucto Har.	Wm. Hudson	
		1 00		1 00	5	Rondeau	School Trustees.	
		1 00		1 00	6	Collingwood do	Great North. Transit Co.	
		1 00		1 00	7	Ottawa	E. G. Laverdure	
1 00		1 00		2 00	8	Walkerton, Ont.	David Robertson & Jno. Rowland	
165 00				165 00	9	British Columbia	A. Peel	
90 00				90 00	10	do	Jonathan Maury	
		25 00		25 00	11	do	Roderick Finlayson	
		25 00		25 00	12	do	Joseph Spratt.	
		50 00		50 00	13	do	Corp. New Westminster.	
		1 00		1 00	14	do	Bank of British Columbia	
		1 00		1 00	15	do	W. Dodd.	
		12 00		12 00	16	do	D. W. Gordon	
5 00		5 00		10 00	17	do	S. Williams.	
		5 00		5 00	18	do	Geo. A. Huff	

Inland Revenues—Excise.

A—Continued.

Lessees' Accounts, 1893-94.

CR.

Description of Property.	Number.	Date to which the Account is made up.	Paid during Fiscal Year.	Balances due 30th June, 1894.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Lots B and C, Chaudière St., service ground.....	1	Jan. 1, 1894	300 00		300 00
Lot D do do	2	do	150 00		150 00
Lots E, F and G, South Head St. do	3	do	300 00		300 00
Lots H, I and J, Grist Mill, South Head St.	4	do	300 00		300 00
Lot K, Fanning Mill, South Head St	5	do	100 00		100 00
Lot L, service ground do	6	do	100 00		100 00
Lots Q, R & T, service ground, North Middle St.	7	do	300 00		300 00
Lots M, N, O and P, service ground (no water used).	8	do	400 00		400 00
Lot S, service ground	9	do	100 00		100 00
Lots U, V, W, X, Y and Z, ground service.....	10	July 1, 1894	600 00		600 00
Two strips of land	11	Jan. 1, 1895	200 00		200 00
Lumber yard at head of slides	12	Sept. 20, 1894	104 00		104 00
Bridge over slides.....	13	July 1, 1895		20 00	20 00
Strip of land, Amelia Island	14	Jan. 1, 1895	100 00		100 00
Reserve, head of Chaudière Island	15	do	96 00	96 00	192 00
Small Island, Deschênes Rapids.....	16	Jan. 1, 1894	8 00		8 00
Portion of lot 39, Concession A, Nepean.....	17	Feb. 1, 1885		570 84	570 84
Excavated channel, slide and two dams, Little Chaudière.....	18	Mar. 1, 1894		50 00	50 00
Water lots, opposite lot 30, Concession A, Nepean.....	19	Dec. 1, 1891		200 00	200 00
Three small islands	20	May 1, 1882		96 00	96 00
Covering over portion of Ottawa slides.....	21	Nov. 10, 1894	1 00		1 00
Water lot, Calumet.....	22	July 1, 1894		780 00	780 00
East portion of Hawley's Island	23	June 30, 1881		380 00	380 00
Piece of land, south-west end of Union Bridge. do on Victoria Island.....	24	Nov. 12, 1894	150 00		150 00
do do south side of Middle St., Victoria Island.....	25	June 15, 1895		15 00	15 00
Small lot of land near Custom House, Quebec.....	26	Aug. 31, 1894	50 00		50 00
Roadway from pier, at Côteau Landing.....	1	Sept. 1, 1894	1 00		1 00
Old Provincial Govt. building lot, on Mountain Hill.....	2	July 1, 1894	25 00		25 00
Piece of land at North Beach.....	3	June 25, 1895	1 00	1 00	2 00
Use of old log house, formerly used as Custom House, Shrewsbury, Ont.....	4	July 1, 1894	5 00		5 00
Use of old breakwater for storing coal.....	5	Sept. 11, 1893	1 00		1 00
South-east half lot No. 8, Ottawa.....	6	Feb. 5, 1895	1 00		1 00
Right of way over strip of land.....	7	Dec. 18, 1894		1 00	1 00
Portion of Assay Office, New Westminster do do	8	Apr. 27, 1895	2 00		2 00
Privilege to erect two bulkheads, Rock Bay, Victoria Harbour.....	9	June 11, 1881		165 00	165 00
Privilege to build a wharf opposite his own property, Victoria Harbour.....	10	do		90 00	90 00
Two lots of land for C. F. R. purposes	11	June 1, 1895	25 00		25 00
Right of drainage through Government property, Nanaimo	12	do	25 00		25 00
Old Government House, Yale.....	13	May 12, 1894	50 00		50 00
Beach lots, A, C, E & F, front of Government Reserve, and lots A, B, C & D, front of lots 7, 8 & 9, Nanaimo Harbour.....	14	Dec. 1, 1894	1 00		1 00
Frontage on lot No. 7, block M, Victoria	15	July 24, 1893	1 00		1 00
Permission to build a wharf on lot A, block 2, on Somas River, Alberni.....	16	Aug. 27, 1894	12 00		12 00
	17	July 16, 1894	10 00		10 00
	18	Aug. 12, 1894	5 00		5 00

DR.

No. 32.—HYDRAULIC and other Rents, &c.,

Balances due on 1st July, 1893.	Rents and Interest accrued up to 30th June, 1894.	Totals.	Number.	Location.	Original Lessees.	Present Occupants.
\$ cts.	\$ cts.	\$ cts.				
.....	1 00	1 00	19	British Columbia	Canadian Pacific Ry. Co.	.....
.....	250 00	250 00	20	do	John Wilson	.....
30 00	10 00	40 00	21	Rivière du Lièvre	Dominion Phosphate Co.	.....
.....	1 00	1 00	22	Charlottetown, P. E. I.	Rt. Rev. Bishop McIntyre	Rt. Rev. Bishop Macdonald
20 00	20 00	40 00	23	Rivière St. Maurice, P. Q.	The Laurentides Pulp Co. (Limited) .....	.....
.....	20 00	20 00	24	do	Jos. Ant. Gagnon.....	.....
2,579 84	3,761 00	6,340 84	...			

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

Lessees' Accounts, 1893-94—Continued.

Cr.

Description of Property.	Number.	Date to which the Account is made up.	Paid during Fiscal Year.	Balances due 30th June, 1894.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Portion of Custom House lot, New Westminster	19	Apr. 14, 1895	2 00	. . . . .	2 00
Lot 1, block 13, corner Begbie and Columbia Streets, New Westminster	20	May 12, 1895		250 00	250 00
Permission to erect a landing at Little Rapids, Rivière du Lièvre	21	May 1, 1895		40 00	40 00
Leave to connect drain to main service of public buildings	22	May 6, 1895	1 00	. . . . .	1 00
Tract of land, Chûte de la Grand'Mère, St. Maurice River	23	June 17, 1895	20 00	20 00	40 00
Water lot on St. Maurice River	24	Mar. 8, 1895	20 00	. . . . .	20 00
			3,567 00	. . . . .	6,341 84
LESS—Refund, over-payment			1 00	. . . . .	1 00
			3,566 00	2,774 84	6,340 84

E. MIALL,
Commissioner.

DR.

No. 32.—HYDRAULIC and other Rents, &c.—

Balances due 1st July, 1893.	Accrued year ended 30th June, 1894.	Totals.	Number.	Location.	Name of Proprietors.
\$ cts.	\$ cts.	\$ cts.			
12,092 83	12,092 83	1	Hamilton and Port Dover Road	
433 34	433 34	2	Bonner's property, Quebec	Choat & Kern
333 34	333 34	3		Timothy Sullivan, now M. Murphy
300 00	300 00	4		John Bailey, now Alex. Powell
147 80	147 80	5		Abraham Thompson
248 40	248 40	6		John Boomer
154 80	154 80	7		John Garbatz, now J. C. Nolan
600 00	600 00	8		N. H. Bowen
333 33	333 33	9		Estate Robert Reid
533 33	533 33	10		John Chevalier
333 33	333 33	11		Daniel Holden
63 00	63 00	12		George Creeley
					Thomas McAdam
15,573 50	15,573 50			
					LAND SALES—INTEREST ACCOUNT.
6,298 25	6,298 25	1	Hamilton and Port Dover Road	
558 00	558 00	2	Bonner's property, Quebec	Choat & Kern (matured)
120 00	120 00	3		Timothy Sullivan, now M. Murphy
306 00	306 00	4		John Bailey, now Alex. Powell
155 22	155 22	5		Abraham Thompson
275 82	275 82	6		John Boomer
208 95	208 95	7		John Garbatz, now J. C. Nolan
828 00	828 00	8		N. H. Bowen
190 00	190 00	9		Estate Robert Reid
298 68	298 68	10		John Chevalier
35 91	35 91	11		Daniel Holden
100 00	100 00	12		George Creeley
100 00	100 00	13		Thomas McAdam
					Joseph Brook, tenant
9,474 83	9,474 83			

INLAND REVENUE DEPARTMENT,
 OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

Lessees' Accounts, 1893-94—*Concluded.*

Description of Property.	Number.	Date to which the account is made up.	Paid during fiscal year.	Balances due 30th June, 1894.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Hamilton and Port Dover Road and Caledonia Bridge.	1			12,092 83	12,092 83
Lot No. 1, Wolfe street.	2			433 34	433 34
do 9 do	3			333 34	333 34
do 49 do	4			300 00	300 00
do 73 and 74, Tower street.	5			147 80	147 80
do 64, Wolfe street, and 211 and 252 Ware street.	6			248 40	248 40
do 67 and 68, Monument street.	7			154 80	154 80
do 22 and 23, Wolfe street.	8			600 00	600 00
do 32, Wolfe street.	9			333 33	333 33
do 65 and 66 Wolfe street.	10			533 33	533 33
do 31, Wolfe street.	11			333 33	333 33
do 135, Church street.	12			63 00	63 00
				15,573 50	15,573 50
.....	1	June 30, 1874		6,298 25	6,298 25
Lot No. 1, Wolfe street.	2	May 1, 1889.		558 00	558 00
do 9 do	3	do		120 00	120 00
do 49 do	4	do		306 00	306 00
do 73 and 74, Tower street.	5	do		155 22	155 22
do 64, Wolfe street, and 211 and 252 Ware street.	6	do		275 82	275 82
do 67 and 68, Monument street.	7	do		208 95	208 95
do 22 and 23, Wolfe street.	8	do		828 00	828 00
do 32, Wolfe street.	9	Nov. 1, 1863.		190 00	190 00
do 65 and 66, Wolfe street.	10	do		298 68	298 68
do 31, Wolfe street.	11	do		35 91	35 91
do 135, Church street.	12	do		100 00	100 00
Monument Hotel.	13	do		100 00	100 00
				9,474 83	9,474 83

E. MIALL,
Commissioner.

APPENDIX B.

No. 1.—DETAILS of Excise Expenditure for the Year ended 30th June, 1894.

To whom paid.	Service.	Deduction for Superannuation.	Amount paid.	Total Amount paid.
		\$ cts.	\$ cts.	\$ cts.
<i>Belleville.</i>				
McAllister, A.	Salary as Collector for the year.....	31 96	1,568 04	
Spereman, J. J.	do Special Class Exciseman for the year	30 00	1,470 00	
Pole, C. W.	do Deputy Collector for the year	24 00	1,176 00	
McCoy, Wm.	do 1st Class Exciseman for the year.....	19 17	937 08	
McCuaig, A. F.	do Deputy Collector do	15 00	735 00	
	Salaries	120 13	5,886 12	
	Contingencies		423 83	6,309 95
<i>Brantford.</i>				
Spence, John.	Salary as Collector for the year	31 96	1,568 04	
Sinon, E. H.	do Deputy Collector for the year	22 12	1,082 88	
Fraser, G. J.	do do do	19 96	980 04	
Hart, P. D.	do 2nd Class Exciseman for the year... ..	16 96	833 04	
Hawkins, A. C.	do 3rd do 1st July to 6th Mar.	13 35	654 71	
do	do 2nd do 7th Mar. to 30th June.....			
	Salaries	104 35	5,118 71	
	Contingencies		548 12	5,666 83
<i>Cornwall.</i>				
Mulhern, M. M.	Salary as Collector for the year.....	18 00	882 00	
	Contingencies		85 75	967 75
<i>Guelph.</i>				
Powell, J. B.	Salary as Collector for the year	36 00	1,764 00	
Bouteiller, G.	do Special Class Exciseman for the year	30 00	1,470 00	
Till, T. M.	do Deputy Collector do	25 96	1,274 04	
Woodward, G. W.	do Special Class Exciseman do	24 00	1,176 00	
Lynes, K.	do do do	24 00	1,176 00	
Broadfoot, S.	do Accountant do	19 96	980 04	
Bish, P.	do 1st Class Exciseman do	19 96	980 04	
MacIntyre, D.	do do do	16 96	833 04	
Erb, A. A.	do 3rd do do	15 00	735 00	
Bowman, A.	do 2nd do do	15 00	735 00	
Howie, A.	do 3rd do do	15 00	735 00	
Johnson, J. J.	do 2nd do do	15 00	735 00	
O'Donohue, M. J.	do 3rd do do	12 30	602 70	
Foster, H.	do 3rd do do	3 75	121 23	
Yates, J. M.	do 2nd do do	8 50	416 52	
	Salaries	281 39	13,733 61	
	Contingencies		1,159 92	14,893 53
<i>Hamilton.</i>				
Miller, W. F.	Salary as Collector for the year	37 80	1,852 20	
Cameron, D. M.	do Special Class Exciseman for the year.....	30 00	1,470 00	
Conway, B. J.	do do do	30 00	1,470 00	
McPherson, A. F.	do Accountant for the year	28 04	1,371 96	
Donaghy, Wm.	do Special Class Exciseman for the year.....	28 04	1,371 96	
Baby, W. A. D.	do do do	28 04	1,371 96	
Ross, S. F.	do Deputy Collector do	27 24	1,337 76	
O'Brien, J. F.	do 1st Class Exciseman do	19 96	980 04	

Inland Revenues—Excise.

APPENDIX B.—No. 1.—Details of Excise Expenditure, 1893-94—Continued.

To whom paid.	Service.	Deduction for Superannuation.	Amount paid.	Total Amount paid.
		\$ cts.	\$ cts.	\$ cts.
<i>Hamilton—Concluded.</i>				
Crawford, W. P.	Salary as 2nd Class Exciseman for the year	16 96	833 04	
Egener, A.	do 2nd do do	16 96	833 04	
Hobbs, G. N.	do 2nd do do	16 96	833 04	
Logan, J.	do 2nd do do	16 96	833 04	
Amor, Wm.	do 2nd do do	16 96	833 04	
Irwin, Robt.	do 1st do do	16 96	833 04	
Dumbrille, R. W.	do 2nd do do	16 83	826 92	
Weir, James	do 2nd do do	16 83	826 92	
Mackay, G. W.	do 3rd do do	15 00	661 47	
Brown, J. J.	do 1st do 1st Jan. to 30th June	10 00	490 02	
	Salaries	389 54	19,029 45	
	Contingencies		1,145 33	20,174 78
<i>Kingston.</i>				
Rowland, F.	Salary as Collector for the year	31 96	1,568 04	
Earle, R. H.	do Special Class Exciseman for the year	24 00	1,176 00	
Grimason, T.	do Deputy Collector do	22 04	1,077 96	
Hanley, A.	do Assistant Accountant do	19 96	980 04	
Browne, G. W.	do 2nd Class Exciseman do	16 96	833 04	
O'Donnell, J.	do 3rd do do	15 00	735 00	
Lyons, E.	do 2nd do do	15 00	735 00	
McFarland, C. D.	do 2nd do do	15 00	735 00	
Fahay, Ed.	do 3rd do do	7 96	392 04	
Dickson, C. T.	do Accountant, 1st Feb. to 30th June	10 00	490 00	
	Salaries	177 88	8,722 12	
	Contingencies		814 04	9,536 16
<i>London.</i>				
Alexander, T.	Salary as Collector for the year	36 00	1,764 00	
Davis, T. G.	do Deputy Collector for the year	30 00	1,470 00	
Power, T. A.	do do do	25 96	1,274 04	
Moore, Wm.	do 1st Class Exciseman do	19 96	980 04	
McSween, J.	do 1st do do	19 96	980 04	
Hicks, W. H.	do Deputy Collector do	19 96	980 04	
Coles, F. H.	do Accountant do	19 96	980 04	
Girard, I.	do 1st Class Exciseman do	19 96	980 04	
Stewart, J.	do 1st do do	19 96	980 04	
Lee, Edward.	do 1st do do	19 96	980 04	
Taylor, J. F.	do 2nd do do	16 96	833 04	
Rowland, E.	do 2nd do do	16 96	833 04	
Yates, J. M.	do 2nd do 1st July to 31st Dec.	8 46	416 52	
Wilson, D.	do Assistant Accountant for the year	16 04	783 96	
Webbe, C. E. A.	do 2nd Class Exciseman do	15 00	735 00	
Bayard, G. A.	do 3rd do do	13 80	676 20	
Tracy, J. P.	do 3rd do do	12 15	595 35	
Foster, H.	do Probationary Exciseman, 1st Oct. to 19th Nov.	14 93	421 44	
	do 3rd Class Exciseman, 20th Nov. to 30th June			
	Salaries	345 98	16,662 87	
	Contingencies		1,074 73	17,737 60

APPENDIX B.—No. 1.—Details of Excise Expenditure, 1893-94—Continued.

To whom paid.	Service.	Deduction for Superannuation.	Amount paid.	Total Amount paid.
		\$ cts.	\$ cts.	\$ cts.
<i>Ottawa.</i>				
Battle, M.	Salary as Collector for the year	31 96	1,568 04	
Henry, J. M. B.	do Deputy Collector for the year	24 00	1,176 00	
Slattery, R.	do 1st Class Exciseman do	19 96	980 04	
Lett, F. P. A.	do 3rd do do	15 00	735 00	
Waller, J.	do 3rd do do	13 20	646 80	
Doyle, J. E. H.	do 3rd do do	12 15	595 35	
	Salaries	116 27	5,701 23	
	Contingencies		179 32	5,880 55
<i>Owen Sound.</i>				
Graham, W. J.	Salary as Collector for the year	19 96	980 04	
Nichols, J. T.	do Deputy Collector for the year	19 96	980 04	
Lang, V.	do 3rd Class Exciseman, 1st July to 30th April	12 50	612 50	
Chisholm, W. N.	do Deputy Collector for the year	12 00	588 00	
	Salaries	64 42	3,160 58	
	Contingencies		806 09	3,966 67
<i>Perth.</i>				
Dickson, C. T.	Salary as Acting Collector, 1st July to 31st Jan.	14 00	686 00	
Mason, F.	do Special Class Exciseman for the year	30 00	1,470 00	
McKimm, U. H.	do Deputy Collector do	13 96	686 04	
Devine, F. M.	do do do	4 96	395 04	
Harty, M. J.	do do do	4 96	395 04	
McLenaghan, N.	do do 28th Dec. to 30th June.		510 73	
George, John.	do do 14th Mar. to 30th June.	1 78	57 87	
	Salaries	69 66	4,200 72	
	Contingencies		915 33	5,116 05
<i>Peterborough.</i>				
Hall, J. J.	Salary as Collector for the year	24 00	1,176 00	
Cahill, T.	do Deputy Collector for the year	19 96	980 04	
Bickle, J. W.	do do do	13 96	686 04	
Knowlson, J. B.	do do do	13 96	686 04	
Howden, R.	do do do	13 96	686 04	
	Salaries	85 84	4,214 16	
	Contingencies		269 13	4,483 29
<i>Port Arthur.</i>				
Ironside, G. A.	Salary as Collector for the year	20 00	980 00	
	Contingencies		102 58	1,082 58
<i>Prescott.</i>				
Dumbrille, J.	Salary as Collector for the year	36 00	1,764 00	
Gerald, W. H.	do Special Class Exciseman for the year	30 00	1,470 00	
Keilty, Thos.	do Deputy Collector do	25 96	1,274 04	
Macdonald, A. B.	do 1st Class Exciseman do	18 68	916 32	
Gow, J. E.	do do do	18 68	916 32	
Boyd, S. J.	do Deputy Collector do	16 04	783 96	
Ferguson, J.	do 3rd Class Exciseman do	15 00	735 00	
Marshall, F.	do do do	15 00	735 00	

Inland Revenues—Excise.

APPENDIX B.—No. 1.—Details of Excise Expenditure, 1893-94—Continued.

To whom paid.	Service.	Deduction for Superannuation.	Amount paid.	Total Amount paid.
		\$ cts.	\$ cts.	\$ cts.
<i>Prescott—Concluded.</i>				
Johnston, G. E.	Salary as 3rd Class Exciseman for the year ...	15 00	735 00	
Keeler, G. S.	do 2nd do do do	15 00	735 00	
Boyle, P.	do do do 1st July to 30th Sept.	3 75	183 75	
	Salaries	209 11	10,248 39	
	Contingencies		447 06	
				10,695 45
<i>Stratford.</i>				
Caven, A.	Salary as Collector for the year ...	31 96	1,568 04	
Rennie, Geo.	do Deputy Collector for the year.	24 00	1,176 00	
Dingman, N. J.	do Special Class Exciseman for the year	24 00	1,176 00	
Spence, F. H.	do 1st do do	19 96	980 04	
Clark, A. F.	do Accountant do	19 96	980 04	
Caven, J. McD.	do 3rd Class Exciseman 1st July to 30th Nov.	5 25	257 25	
	Salaries	125 13	6,137 37	
	Contingencies		776 79	
				6,914 16
<i>St. Catharines.</i>				
Hesson, C. A.	Salary as Collector for the year ...	24 00	1,176 00	
Schram, B.	do Deputy Collector for the year.	24 00	1,176 00	
Flynn, J. P.	do Exciseman do	19 96	980 04	
Milliken, E.	do 2nd Class Exciseman do	16 96	833 04	
	Salaries	84 92	4,165 08	
	Contingencies		442 03	
				4,607 11
<i>Toronto.</i>				
Stratton, W. C.	Salary as Collector for the year ...	43 96	2,156 04	
Dudley, W. H.	do Special Class Exciseman for the year	31 96	1,568 04	
Bennett, Jas.	do Deputy Collector do	30 00	1,470 00	
Blair, J. B.	do Accountant do	28 04	1,371 96	
Iler, B.	do Special Class Exciseman do	25 96	1,274 04	
Henderson, W.	do Asst. Accountant do	25 96	1,274 04	
Rogerson, J. M.	do Special Class Exciseman do	24 00	1,176 00	
Dawson, W.	do do do	24 00	1,176 00	
Metcalfe, W. F.	do do do	24 00	1,176 00	
Shanacy, M.	do Deputy Collector do	22 04	1,077 96	
Boomer, J. B.	do Asst. Accountant do	22 04	1,077 96	
Coleman, C.	do Deputy Collector do	19 96	980 04	
Brown, J. J.	do 1st Class Exciseman, 1st July to 31st Dec.	9 96	490 02	
Evans, G. T.	do 1st Class Exciseman for the year ...	19 96	980 04	
Weyms, C.	do do do	19 96	980 04	
Helliwell, H. N.	do do do	19 96	980 04	
McDonald, J. A.	do do do	19 96	980 04	
Dick, J. W.	do do do	19 96	980 04	
O'Leary, T. J.	do do do	19 96	980 04	
Goodman, A. W.	do do do	19 96	980 04	
Westman, T.	Salary as 1st Class Exciseman, 1st July to 20th Sept., and as Special Class Exciseman from 21st Sept. to 30th June.	23 09	1,132 46	
Jamieson, R. C.	Salary as 1st Class Exciseman for the year ...	19 17	937 08	
Flynn, D.	do do do	19 17	937 08	
Walsh, D. J.	do do do	18 68	916 32	
Taylor, G. W.	do do 1st July to 20th Sept. and Special Class Exciseman from 21st Sept. to 30th June.	22 79	1,118 30	

APPENDIX B.—No. 1.—Details of Excise Expenditure, 1893-94—Continued.

To whom paid.	Service.	Deduction for Superannuation.	Amount paid.	Total Amount paid.
		\$ cts.	\$ cts.	\$ cts.
<i>Toronto—Concluded.</i>				
Barber, J. S.	Salary as 2nd Class Exciseman for the year . . .	16 96	833 04	
Murray, A. E.	do 2nd do do . . .	16 96	833 04	
Adams, J. S.	do 3rd do do . . .	15 00	735 00	
Dodds, E. W.	do 3rd do do . . .	15 00	735 00	
Bell, J. E.	do 2nd do do . . .	15 00	735 00	
Graham, W. T.	do 2nd do do . . .	15 00	735 00	
Reddan, C. J.	do 3rd do do . . .	14 40	705 60	
Winter, A. W.	do 3rd do do . . .	13 80	676 20	
Jones, Andrew	do 3rd do do . . .	12 60	617 40	
Howard, W. W. S.	do 3rd do do . . .	12 60	604 27	
Cook, W. R.	do 3rd do do . . .	12 30	602 70	
Lawder, John	do Deputy Collector do . . .	1 24	98 76	
Hurst, L. B.	do Messenger do . . .	6 32	493 68	
Doyle, B. J.	do 2nd Class Exciseman, 1st Oct. to 30th June	11 25	551 25	
	Salaries	752 93	37,125 56	
	Contingencies		853 62	
				37,979 18
<i>Windsor.</i>				
Kenning, J. H.	Salary as Collector for the year	43 96	2,156 04	
Gerald, C.	do Special Class Exciseman for the year	31 96	1,568 04	
Ramon, P.	do Deputy Collector do . . .	30 00	1,470 00	
Crowe, W.	do Special Class Exciseman do . . .	28 04	1,371 96	
Dunlop, C.	do Deputy Collector do . . .	24 00	1,176 00	
Beasley, R.	do Accountant do . . .	24 00	1,176 00	
Brennan, J.	do do do . . .	21 00	1,029 00	
Allen, G. A.	do 1st Class Exciseman do . . .	18 68	916 32	
Jubenville, J. P.	do 2nd do do . . .	16 96	833 04	
Falconer, J.	do 3rd do do . . .	15 00	735 00	
Keogh, P. M.	do 3rd do do . . .	15 00	735 00	
Crotty, John	do 3rd do do . . .	15 00	735 00	
Cahill, J. W.	do 3rd do do . . .	15 00	735 00	
Bradley, Carrie.	do 2nd do do . . .	15 00	735 00	
Brennan, D. J.	do 2nd do do . . .	15 00	735 00	
Thomas, R.	do 2nd do do . . .	15 00	735 00	
Marcon, F. E.	do 3rd do do . . .	12 60	617 40	
Kilroy, E. T.	do 3rd do do . . .	12 30	602 70	
McLean, F. H.	do Probationary Exciseman, 20th March to 30th June	4 20	136 90	
	Salaries	372 70	18,198 40	
	Contingencies		696 40	
				18,894 80
<i>Joliette.</i>				
Leprohon, R. M.	Salary as Collector for the year	19 96	980 04	
Marion, J. E. E.	do 3rd Class Exciseman for the year	13 20	646 80	
Lavallée, V. P.	do Deputy Collector do . . .	3 72	296 28	
	Salaries	36 88	1,923 12	
	Contingencies		116 36	
				2,039 48
<i>Montreal.</i>				
Lawlor, H.	Salary as Collector for the year	36 00	1,764 00	
Macdonald, D.	do Deputy Collector for the year	28 04	1,371 96	
Toupin, F. X. J. A.	do do do . . .	25 96	1,274 04	
Caven, W.	do Special Class Exciseman for the year	25 96	1,274 04	
Lecours, H. T.	do Accountant for the year	25 96	1,274 04	
Quinn, J. D.	do Special Class Exciseman for the year	24 00	1,176 00	

Inland Revenues—Excise.

APPENDIX B.—No. 1.—Details of Excise Expenditure, 1893-94—Continued.

To whom paid.	Service.	Deduction for Superannuation.	Amount paid.	Total Amount paid.
<i>Montreal—Concluded.</i>		\$ cts.	\$ cts.	\$ cts.
Baby, J. C.	Salary as Special Class Exciseman for the year	24 00	1,176 00	
Fox, J. D.	do Assistant Accountant do	22 04	1,077 96	
Hudon, A.	do Exciseman for the year.	19 96	980 04	
Beauchamp, J. D.	do 1st Class Exciseman for the year.	19 96	980 04	
Fox, Thos.	do do do	19 96	980 04	
Villeneuve, J.	do do do	19 96	980 04	
Forest, E. R.	do Cashier for the year.	19 96	980 04	
Hastie, Wm.	do Exciseman do	18 00	882 00	
Barker, C.	do 2nd Class Exciseman for the year.	16 96	833 04	
Bulmer, W.	do do do	16 96	833 04	
Malo, T.	do 2nd do do	16 96	833 04	
Scullion, W. J.	do 2nd do do	16 96	833 04	
Dumouchel, L.	do 2nd do do	16 96	833 04	
McClanaghan, M.	do 2nd do do	16 96	833 04	
Courtney, J. J.	do 2nd do do	16 96	833 04	
Verner, F.	do 2nd do do	16 83	826 92	
Millier, E.	do 3rd do do	15 00	735 00	
Perry, G. L.	do 3rd do do	15 00	735 00	
Manning, J.	do 3rd do do	15 00	735 00	
Baby, Jos.	do 3rd do do	15 00	735 00	
Panneton, G. E.	do 3rd do do	15 00	735 00	
Pinsonnault, A. C.	do 3rd do do	15 00	735 00	
Laporte, G. A.	do 3rd do do	15 00	735 00	
Watkins, J. A.	do 3rd do do	15 00	735 00	
Costigan, J. J.	do 3rd do do	15 00	735 00	
Dixon, H. G. S.	do 2nd do do	15 00	735 00	
Reilly, J. S.	do 2nd do do	13 75	438 73	
Doyle, B. J.	do 2nd do 1st July to 30th Sept.	3 75	183 75	
Fraser, P.	do 2nd do for the year	15 00	735 00	
Murray, D.	do 2nd do do	15 00	735 00	
O'Brien, E. C.	do 2nd do do	15 00	735 00	
Codd, H. J. S.	do 3rd do do	13 80	676 20	
Daveluy, J. P.	do 3rd do do	13 44	661 56	
O'Flaherty, E. J.	do 3rd do do	13 20	646 80	
Brabant, G. N.	do 3rd do do	13 20	646 80	
Belair, A.	do 3rd do do	12 60	617 40	
Lane, T. M.	do 3rd do do	13 20	646 80	
Ryan, W.	do 3rd do do	12 00	630 00	
Mainville, C. P.	do 3rd do do	9 16	540 84	
Scullion, P. J.	do 3rd do do	13 96	686 04	
Cullen, P.	do Messenger for year.	13 96	686 04	
Boyle, P.	do 2nd Class Exciseman from Oct. 1st to 30th June—Insurance, \$17.94.	13 11	531 45	
	\$17.94			
	Salaries.....	805 48	39,877 81	
	Contingencies.....		4,360 93	
	<i>Quebec.</i>			44,238 74
LaRue, G.	Salary as Collector for the year	35 24	1,724 76	
Cahill, J. H.	do Deputy Collector for the year	25 96	1,274 04	
Coleman, J. J.	do 1st Class Exciseman for the year	16 96	833 04	
Rouleau, J.	do 3rd do do	15 00	735 00	
LeMoine, J.	do 3rd do do	15 00	735 00	
Bourget, O.	do 3rd do do	15 00	735 00	
Lépine, L.	do 3rd do do	15 00	735 00	
Langlois, F. X.	do 3rd do July 1 to Sept. 30.	3 75	183 75	
Fahey, O.	do 3rd do for the year	15 00	735 00	
Sexton, John.	do 3rd do do	14 40	705 60	
Bourassa, Jos.	do 3rd do do	19 02	547 64	
	Salaries.....	190 33	8,943 83	
	Contingencies.....		1,830 50	
				10,774 33

APPENDIX B.—No. 1.—Details of Excise Expenditure, 1893-94—Continued.

To whom paid.	Service.	Deduction for Superannuation.	Amount paid.	Total Amount paid.
		\$ cts.	\$ cts.	\$ cts.
<i>Sherbrooke.</i>				
Simpson, A. F.	Salary as Collector for the year	25 20	1,234 80	
Chartier, E.	do Deputy Collector, 1st Jan. to 30th June		399 96	
	Salaries	25 20	1,634 76	
	Contingencies		1,275 59	2,910 35
<i>Sorel.</i>				
Fortier, J. J. O.	Salary as Collector for the year	17 50	857 50	
	Contingencies		90 47	947 97
<i>St. Hyacinthe.</i>				
Boivin, C. A.	Salary as Collector for the year	20 00	980 00	
	Contingencies		190 24	1,170 24
<i>St. Johns'.</i>				
Boucher, O. N. E.	Salary as Collector for the year	16 04	783 96	
Gatien, F.	do 3rd Class Exciseman for the year	14 04	690 96	
Perkins, L. A.	do Deputy Collector do	5 48	434 52	
	Salaries	35 56	1,909 44	
	Contingencies		311 36	2,220 80
<i>Terrebonne.</i>				
Desroches, D.	Salary as Collector for the year	13 96	686 04	
Fiset, A.	do Deputy Collector for the year	2 48	197 52	
	Salaries	16 44	883 56	
	Contingencies		197 12	1,080 68
<i>Three Rivers.</i>				
Hébert, C. D.	Salary as Collector for the year	22 96	1,127 04	
Duplessis, C. Z.	do 3rd Class Exciseman for the year	15 00	735 00	
	Salaries	37 96	1,862 04	
	Contingencies		273 96	2,136 00
<i>Chatham.</i>				
Lawlor, R. A.	Salary as Collector for the year	24 00	1,176 00	
	Contingencies		66 26	1,242 26
<i>St. John.</i>				
Atherton, R.	Salary as Collector for the year	30 76	1,509 24	
Belyea, T. H.	do Accountant for the year	19 96	980 04	
McCloskey, J. R.	do 2nd Class Exciseman, 1st July to 6th March; 1st Class Exciseman, 7th March to 30th June	16 38	803 68	
Ferguson, J. C.	do 2nd Class Exciseman for the year	15 00	735 00	
Fitzpatrick, W. J.	do do do	15 00	735 00	
Smyth, B. B.	do do do	15 00	735 00	
Geldart, O. A.	do 3rd do do	12 30	602 70	
Hill, A. M.	do Deputy Collector do	10 04	489 96	
Dibblee, W.	do do do	3 72	296 28	
Clark, J. A.	do do do	24 00	1,176 00	
	Salaries	162 16	8,062 90	
	Contingencies		565 14	8,628 04

Inland Revenues—Excise.

APPENDIX B.—No. 1.—Details of Excise Expenditure, 1893-94—Continued.

To whom paid.	Service.	Deduction for Superannuation.	Amount paid.	Total Amount paid.
		\$ cts.	\$ cts.	\$ cts.
<i>Cape Breton.</i>				
McDonald, M. A.	Salary as Collector for the year.....	15 00	735 00	
	Contingencies.....		84 97	
				819 97
<i>Halifax.</i>				
Grant, H. H.	Salary as Collector for the year.....	33 60	1,646 40	
Standish, J. G.	do Special Class Exciseman for the year.....	28 04	1,371 96	
King, R. M.	do Deputy Collector for the year.....	25 20	1,234 80	
James, T. C.	do Accountant do.....	19 96	980 04	
Carroll, D.	do 1st Class Exciseman do.....	19 96	980 04	
Wainwright, F. G.	do 2nd do do.....	16 96	833 04	
Blethen, C. W.	do 2nd do do.....	16 83	826 92	
Tompkins, P.	do 3rd do do.....	15 00	735 00	
Hagarty, P.	do 3rd do do.....	15 00	735 00	
Munro, H. D.	do 3rd do do.....	12 60	617 40	
Hubley, H. H.	do 3rd do do.....	6 32	493 68	
Gorman, A.	do Messenger for the year.....			
	Salaries.....	224 47	11,189 28	
	Contingencies.....		589 62	
				11,778 90
<i>Pictou.</i>				
Dustan, W. M.	Salary as Collector for the year.....	20 00	980 00	
	Contingencies.....		105 41	
				1,085 41
<i>Charlottetown.</i>				
Nash, S. C.	Salary as Collector for the year.....	24 00	1,176 00	
Moore, Theo.	do Deputy Collector for the year.....	19 96	980 04	
	Salaries.....	43 96	2,156 04	
	Contingencies.....		97 51	
				2,253 55
<i>Winnipeg.</i>				
Costigan, H. A.	Salary as Collector for the year.....	43 96	2,156 04	
Christie, W. J.	do Deputy Collector for the year.....	30 00	1,470 00	
Gosnell, T. S.	do Accountant do.....	28 04	1,371 96	
Hawkins, W. L.	do do do.....	24 00	1,176 00	
Dowling, Thos.	do Deputy Collector do.....	19 96	980 04	
Thomas, P.	do do do.....	18 00	882 00	
Davis, James	do do do.....	17 82	874 68	
Girdlestone, R.J.M.	do 1st Class Exciseman do.....	16 96	833 04	
Code, A.	do Deputy Collector do.....	16 83	826 92	
Saucier, X.	do 2nd do do.....	16 83	826 92	
Colclough, J.W.	do Deputy Collector do.....	6 32	493 68	
LaRivière, A. C.	do 3rd Class Exciseman do.....	18 98	548 47	
Wardell, R. S. R.	do Probationary Exciseman, 1st June 30th June.....	1 25	40 41	
	Salaries.....	258 95	12,480 16	
	Contingencies.....		3,064 62	
				15,534 78
<i>Vancouver.</i>				
Miller, J. E.	Salary as Collector for the year.....	30 00	1,470 00	
Harvey, E. A.	do Deputy Collector for the year.....	16 04	783 96	

APPENDIX B.—No. 1.—Details of Excise Expenditure, 1893-94—Continued.

To whom paid.	Service.	Deduction for Superannuation.	Amount paid.	Total Amount paid.
		\$ cts.	\$ cts.	\$ cts.
<i>Vancouver—Concluded.</i>				
Wolfenden, W.	Salary as Deputy Collector for the year	13 96	686 04	
Blundell, R.	do do do do	12 00	588 00	
Monteith, J. A.	do do do do	3 16	246 84	
Bishop, Alder.	do do 6th November to 30th June	4 86	158 31	
Parkinson, E. B.	do 3rd Class Exciseman, 1st March to 30th June	7 00	193 00	
	Salaries	87 02	4,126 15	
	Contingencies		1,650 73	5,776 88
<i>Victoria.</i>				
Jones, R.	Salary as Collector for the year	30 00	1,470 00	
Williams, G.	do Deputy Collector for the year	24 00	1,176 00	
Henwood, G.	do 2nd Class Exciseman for the year	16 96	833 04	
Leighton, W. R.	do Deputy Collector for the year	6 00	294 00	
	Salaries	76 96	3,773 04	
	Contingencies		1,476 95	5,249 99
DISTRICT INSPECTORS.				
<i>Ontario.</i>				
Hamilton, W. L. . . .	Salary for the year	50 00	2,450 00	
	Contingencies		935 30	3,385 30
Morrow, John	Salary for the year	50 00	2,450 00	
	Contingencies		305 15	2,755 15
Gow, James	Salary for the year	48 00	2,352 00	
	Contingencies		472 88	2,824 88
<i>Quebec.</i>				
Vincent, J. L.	Salary for the year	44 00	2,156 00	
	Contingencies		197 58	2,353 58
LeMoine, J. M.	Salary for the year		2,400 00	
	Contingencies		284 32	2,684 32
<i>Nova Scotia and Prince Edward Island.</i>				
Borradaile, R.	Salary for the year	48 00	2,352 00	
	Contingencies		531 72	2,883 72
<i>New Brunswick.</i>				
Burke, T.	Salary for the year	38 00	1,862 00	
	Contingencies		409 62	2,271 62
<i>Manitoba.</i>				
Barrett, J. K.	Salary for the year	50 00	2,450 00	
	Contingencies		2,417 90	4,867 90
<i>British Columbia.</i>				
Gill, W.	Salary for the year	50 00	2,450 00	
	Contingencies		689 85	3,139 85

Inland Revenues—Excise.

APPENDIX B.—No. 1.—Details of Excise Expenditure, 1893-94—Continued.

To whom paid.	Service.	Deduction for Superannuation.	Amount paid.	Total Amount paid.
	INSPECTOR OF BONDED FACTORIES.	\$ cts.	\$ cts.	\$ cts.
Morrow, John.....	Contingencies for the year.....			257 35
	INSPECTOR OF TOBACCO FACTORIES.			
Gerald, W. J.....	Contingencies for the year.....			67 05
	INSPECTOR OF DISTILLERIES.			
Davis, John.....	Salary for the year.....	56 00	2,744 00	
	Contingencies.....		897 14	3,641 14
	CHIEF INSPECTOR.			
Godson, H.....	Salary for the year.....	56 00	2,744 00	
	Contingencies.....		92 01	2,836 01
	<i>General Excise Contingencies.</i>			
Carter, Chas. R.....	Services from 14th April to 7th May, 20 days, at \$400 per annum.....		22 22	
Glen, Miss M. M.....	Services from 17th April to 16th June, at \$400 per annum.....		66 66	
Sixsmith, Miss B.....	Services from 2nd May to 2nd June, at \$400 per annum.....		33 33	
Higgins, Miss M.....	Services from 16th June to 13th July, 23 days, at \$400 per annum.....		24 72	
Mayon, D. J.....	Services for 23 days in July, 25 days in August, 26 days in September, as extra clerk; 14 days in January, 28 days in February, 10 days in March, as typewriter.....		158 20	
Mann, Miss J.....	Services for 1 month from 22nd January, at \$400 per annum.....		33 33	
Hagarty, Miss B.....	Services from 17th to 28th February, 12 days, 90 days in March and from 1st April to 30th June, 133 days, at \$400 per annum.....		146 49	
Westman, Thomas.....	Travelling expenses from Toronto to Ottawa.....	\$ 9 80		
do.....	Board allowance from 30th July to 30th September.....	74 14		
do.....	Board allowance to 6th October and travelling expenses to Toronto.....	17 58		
			101 52	
B. A. B. Note Co.....	To pay for stamps supplied.....		25,000 00	
do.....	Payment <i>re</i> judgment of the Exchequer Court.....	\$3,503 90		
do.....	Paying costs <i>re</i> B. A. Bank Note Co. <i>vs.</i> Queen.....	485 90		
			3,989 80	
Bickle, John W.....	To pay medical expenses for attending him when severely injured while in the discharge of his official duties.....		105 00	
Pritchard & Andrews.....	Rubber stamps, stencils, daters, rollers, numbering machine, &c.....		358 20	
Gerald, W. H.....	Travelling expenses, Prescott to Ottawa and Montreal.....		26 25	
McCullough, A.....	Petty expenses, freight, cartage, &c.....		70 20	
Wiser, J. P., & Son.....	Barrels for fusel-oil.....		18 00	
Alexander, Thos.....	Expenses to Ottawa.....		10 20	
Potters, Chas.....	Three cups, twenty-four pyrometers, and eight hours time.....		664 00	
Registrar, Exchequer Court.....	Fees for four writs of assistance.....		11 60	

APPENDIX B.—No. 1.—Details of Excise Expenditure, 1893-94—Continued.

To whom paid.	Service.	Amount paid.	Total Amount paid.
<i>General Excise Contingencies—Concluded.</i>		\$ cts.	\$ cts.
Canadian Express Co.	Charges on returned hydrometers, and goods from L. Oertling.	21 65	
O'Connor, D., jun.	Lumber and testing stands.	68 62	
Bowes, Wm.	Commission on \$638.50; 12 collections made during the year ended 30th June, 1893.	31 90	
Stanley, T. D.	Commission on \$2,743.18; collections made during the year ended 30th June, 1893.	137 16	
Birkett, T.	Hardware.	16 32	
Gooderham & Worts.	Spirits and express charges on tanks from Ottawa.	23 60	
Canada Atlantic Ry. Co.	Freight.	5 13	
Bailey, George.	Work and materials supplied to Department.	100 30	
Negretti & Zambra.	Thermometers, hydrometers and test glasses, &c.	541 30	
Howe, Wm.	Cleaning, repairing and relacquering and locks.	182 25	
Oertling, L.	Regilding and re-adjusting hydrometers, &c.; 5 new petroleometers and 46 burettes.	199 89	
Total		32,167 84	
DEDUCT—Received from sale of hydrometers, petroleometers, thermometers, gravity tables, testing apparatus and other instruments.		147 25	
Total, General Contingencies.			32,020 59
<i>Law Costs.</i>			
Nantel, W. B.	Professional services <i>in re</i> Regina vs. Pigeon.	10 00	
do	do Regina vs. Lallier.	10 00	
			20 00
Brown, W. W., & Co.	do Regina vs. Lemieux.		10 00
Baker, Fred E.	do Regina vs. Tehan.	36 64	
do	do Regina vs. McDonald.	3 03	
do	do Regina vs. Wallace.	4 06	
			43 73
Drake, Jackson & Helmsken.	do Regina vs. Davies.		15 50
Angers, C. P.	do Regina vs. Lachance.	25 40	
do	do Regina vs. Lepage.	20 03	
do	do Regina vs. D. Asselin.	20 03	
do	do Regina vs. O. Labbé.	22 23	
do	do Regina vs. N. Asselin.	34 03	
do	do Regina vs. N. Coulombe.	20 00	
do	do Regina vs. X. Emond.	20 00	
do	do Regina vs. Gauvin.	20 00	
			181 72
Racicot, E.	do Regina vs. Gilbert.	56 98	
do	do Regina vs. Lavoie, Thompson & Gabriau, dit Lapanne.	52 12	
do	Disbursements to bailiff in Regina vs. Thompson.	8 35	
			117 45
Brown, H. B.	Professional services <i>in re</i> Regina vs. O'Dell.		31 20
McConville, J. N. A.	Legal expenses <i>in re</i> Regina vs. Mireault.		94 30
Hall, Hon. J. S.	Professional services <i>in re</i> Regina vs. Lecours.	10 00	
do	do Regina vs. T. Brant.	5 00	
do	do Regina vs. Brant & Lecours.	67 60	
do	do Regina vs. F. Counard.	89 40	
do	do Regina vs. J. B. Marcotte.	36 40	
do	do Regina vs. J. Desjardins.	20 70	
do	do Regina vs. J. Desjardins & O. St. Charles.	43 10	
do	do Regina vs. O. St. Charles.	31 00	

Inland Revenues—Excise.

APPENDIX B.—No. 1.—Details of Excise Expenditure, 1893-94—Continued.

To whom paid.	Service.	Amount paid.	Total Amount paid.
	<i>Law Costs—Concluded.</i>	\$ cts.	\$ cts.
Hall, Hon. J. S.	Professional services in re Regina vs Mireault	82 60	
do	do Regina vs. Findley & Pinsonnault	143 05	
do	do Regina vs. Gervais	97 44	
do	do Regina vs. L'homme	73 54	
do	do Regina vs. Laurin	20 00	
do	Law costs and disbursements in re investigation of Bonded Warehouse of A. Resther	226 05	
do	Legal expenses in re Regina vs. Desjardins & St. Charles (penalties imposed).	10 00	
do	do Regina vs. J. B. Marcotte (penalty imposed).	10 00	
do	do Regina vs. F. Counard	15 00	
do	do Regina vs. Lecours & Brant	15 00	
do	do Regina vs. Paquin	10 00	
do	do Regina vs. Jos. Desjardins, jun. (4 cases)	92 66	
do	Professional services in re Regina vs. Heaganton	21 80	
do	do Regina vs. O. Richot	10 00	
			1,130 34
Thibault, C.	Law costs in re Regina vs. Lavoie		5 00
Messier, J. S.	To pay attorney for respondent on appeal which was dismissed with costs against the appellant C. Curless		20 50
Gervais, Honoré	To pay solicitor for defendant, the appeal having been dismissed in Curless vs. Gervais		20 00
Taché, P. V.	Professional services in re Regina vs. Malenfant	10 00	
do	do Regina vs. Bertrand	5 00	
do	do Regina vs. Boulet	11 00	
do	do Regina vs. Boulet	5 00	
do	do Regina vs. J. Gagnon	2 00	
do	do Regina vs. N. Aubin	5 00	
do	do Regina vs. F. Potvin	55 95	
do	do Regina vs. G. A. Binet	4 00	
do	do Regina vs. S. Bellay	6 00	
do	do General	7 99	
do	do Regina vs. Rioux	54 96	
			166 90
Borden, Ritchie, Parker & Chisholm.	Legal expenses in re Regina vs. Pettipas	37 00	
do	Professional services in re Regina vs. McCurdy investigation	20 00	
do	do Regina vs. Dares	67 00	
do	do Regina vs. Curry	35 50	
do	do and advice in connection with illicit distilleries.	5 00	
			164 50
Boisseau, J.	do Regina vs. Lallier	6 30	
do	do Regina vs. Pigeon	17 20	
do	Expenses money order, &c.	0 45	
			23 95
Bender, A. J.	Professional services in re Regina vs. Joncas		20 00
Girard, A. D.	Attorney for appellant J. Findlay, fee and costs in seizure No. 30, St. Johns		26 50
Aikens, Culver & Co.	Professional services in re Regina vs. Litner		20 00
Higgins, Frank E.	do Regina vs. John Oag		50 00
Howden & Howden	do Regina vs. J. H. Currie		10 00
McLeod, Neil.	do in re opinion, &c. as to goods of Connolly Bros. in bonded warehouse		11 16
McDonald, Wm.	do in re Regina vs. Marshall & Beckwith		13 00
Howden, J. H.	do in re Regina vs. Irwin and Regina vs. Cunningham		214 30
	Total law costs		2,410 05

APPENDIX B.—No. 1.—Details of Excise Expenditure, 1893-94—Continued.

To whom paid.	Place of Residence.	Service.	Amount paid.	Total.
<i>Commission to Customs Officers.</i>			\$ cts.	\$ cts.
Cameron, A. McK.	Meaford, Ont.	From 1st July, 1892, to 30th June, 1893		150 00
Williamson, A. M.	Kincardine, Ont. ..	do do		100 75
Rayburn, R.	Deseronto, Ont.	do do		150 00
McGuire, F. J.	Trenton, Ont.	do do		150 00
Elliott, George M.	Napanee, Ont.	do do		250 00
Ormiston, John	Gananoque, Ont.	do do		200 00
Hogg, W. A.	Collingwood, Ont. ..	do do		250 00
Joncas, P. L.	Magdalen Island, Q.	do do		5 33
Beauchesne, P. C.	Paspébiac, Que.	do do		150 00
Kavanagh, J. J.	Gaspé, Que.	do do		38 10
Danis, A. D.	Valleyfield, Que.	do do		250 00
Clark, Alex. J.	Campobello, N.B.	do do		150 00
Wallace, G. H.	Sussex, N.B.	do do		126 87
Binney, J. W.	Moncton, N.B.	do do		250 00
Milner, W. C.	Sackville, N.B.	do do		150 00
Park, W. A.	Newcastle, N.B.	do do		200 00
Street, A. F.	Fredericton, N.B.	do do		250 00
Robidoux, F.	Shediac, N.B.	do do		39 63
O'Brien, W. J.	Bathurst, N.B.	do do		100 92
Hamilton, A. G.	North Sydney, N.S.	do do		150 00
Blair, H. C.	Truro, N.S.	do do		250 00
Jones, Nor. B.	Weymouth, N.S.	do do		149 91
Ratchford, C. E.	Amherst, N.S.	do do		250 00
Boyd, A.	Antigonish, N.S.	do do		200 00
Jameson, S. B.	Regina, Man.	do do		150 00
Tennant, J. F.	Gretna, Man.	do do		146 91
Scarth, W. F.	Viriden, Man.	do do		200 00
Champness, F.	Lethbridge, Man.	do do		116 31
Cox, Wm.	Macleod, Man.	do do		81 57
Jones, E. H.	Kamloops, B.C.	do do		200 00
Total Commission to Customs Officers.				4,856 30
<i>Commission on Tobacco Stamps.</i>				
Ferland, Ed.	St. Alexis, Que.	Allowance of 5 p. c. on sale of stamps	3 00	
Martineau, S.	Lavaltrie, Que.	do do	0 85	
Gauthier, P.	St. Eustache, Que.	do do	43 78	
Archambault, Miss.	St. Alexis, Que.	do do	50 30	
Bourgeois, Jos.	do do	do do	2 50	
Total Commission on sale of Canada Twist Stamps.				100 43
<i>Duty Pay.</i>				
Dudley, W. H.	From 1st July, 1893, to 30th June, 1894.		200 00	
Dawson, W.	do do	do do	150 00	
Jamieson, R. C.	do do	do do	100 00	
McDonald, J. A.	do do	do do	100 00	
O'Leary, T. J.	do do	do do	100 00	
Flynn, D.	do do	do do	100 00	
Howard, W. W. S.	do do	do do	100 00	
Goodman, A. W.	do do	do do	100 00	
Brown, J. J.	To 4th Oct., 1893.		26 11	
Gerald, C.	From 1st July, 1893, to 30th June, 1894.		200 00	
Falconer, J. E.	do do	do do	100 00	
Macon, F. E.	1st Jan., 1894, to	do do	50 00	
Brennan, J.	1st July, 1893, to	do do	100 00	
McLean, H. F. H.	21st March, 1894, to	do do	27 78	
Cahill, J. W.	1st July, 1893, to	do do	100 00	
Keogh, P. M.	do do	do do	100 00	
Crotty, John.	do do	do do	100 00	

Inland Revenues—Excise.

APPENDIX B.—No. 1.—Details of Excise Expenditure, 1893-94—Continued.

To whom paid.	Service.	Amount paid.	Total.
<i>Duty Pay.—Concluded.</i>		\$ cts.	\$ cts.
Thomas, Robert.....	From 1st July, 1893, to 30th June, 1894.....	100 00	
Brennan, D. J.....	do do.....	100 00	
Crowe, W.....	do do.....	150 00	
Allen, G. A.....	do do.....	100 00	
Kilroy, E. T.....	do do.....	100 00	
Foster, H.....	do do.....	91 66	
Gerald, W. H.....	do do.....	150 00	
Gow, J. E.....	do do.....	150 00	
Johnstone, G. E.....	do do.....	100 00	
Keeler, G. S.....	do do.....	100 00	
Bouteiller, G. A.....	do do.....	100 00	
Howie, A.....	do do.....	150 00	
Bish, P.....	do do.....	100 00	
O'Donohue, M. J.....	do to 9th Sept., 1893.....	19 16	
Woodward, G. W.....	1st Oct., 1893, to 30th June, 1894.....	75 00	
Spereman, J.....	1st July, 1893, to do.....	100 00	
McCoy, W.....	do do.....	150 00	
Conway, B. J.....	do do.....	100 00	
Baby, W. A. D.....	do do.....	150 00	
Weir, J.....	do do.....	100 00	
Standish, J. G.....	do do.....	100 00	
Tompkins, P.....	do do.....	150 00	
Hagarty, P.....	do do.....	100 00	
Mason, F.....	do do.....	100 00	
Caven, W.....	do do.....	200 00	
Miller, E.....	do do.....	150 00	
Beauchamp, J. P.....	do do.....	100 00	
Scullion, W. J.....	do do.....	100 00	
Coleman, J. J.....	12th July, 1893, to do.....	122 00	
Lépine, L.....	do do.....	75 00	
Toupin, F. X. J. A.....	19th July, 1892, to 31st Aug., 1892.....	24 09	
Cameron, D. M.....	1st July, 1893, to 30th June, 1894.....	200 00	
Iler, B.....	do do.....	200 00	
Sexton, J.....	do do.....	100 00	
Quinn, J. D.....	do to 31st Dec., 1893.....	50 00	
Yates, James.....	For year 1892-93.....	41 87	
Murray, D.....	From 1st Jan., 1894, to 30th June, 1894.....	50 00	
Bayard, G. A.....	For year 1892-93.....	75 00	5,802 47
do	From 1st Jan., 1894, to 30th June, 1894.....	25 00	
Total Duty-Pay.....			5,902 47
Grand Total.....			374,062 52
ADD—Printing.....		4,970 79	
Stationery.....		910 95	
Lithographing.....		1,197 50	
			7,079 24
		Superannuation Fees.	
		\$ cts.	
Preventive Service—			
Salaries.....		68 17	3,531 83
Contingencies.....		5,891 53	
			9,423 36
Authorized disbursements (less superannuation).....			390,565 12

APPENDIX B.—No. 1—Details of Excise Expenditure, 1893-94—*Concluded.*

Service.	Amount paid.	Total.
	\$ cts.	\$ cts.
ADD—Balances due to Collectors, 1st July, 1893.	49 08	
do by do 30th June, 1894.	393 98	
		443 06
		390,998 18
LESS—Balances due by Collectors, 1st July, 1893.	393 98	
do to do 30th June, 1894.	49 08	
		443 06
Actual disbursements agreeing with Statement No. 4, page 10.		390,555 12

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

APPENDIX B—Continued.

No. 2.—DETAILS of Fees paid to Cullers, for the Fiscal Year ended 30th June, 1894.

Office.	Department.	Name of Culler.	Amounts Paid.	Total.	Grand Total.	
			\$ cts.	\$ cts.	\$ cts.	
QUEBEC.....	Square timber.....	Dorval, George.....	700 00			
		Kelly, Edward.....	700 00			
		Fredrick, Ant.....	700 00			
		McKendry, Daniel.....	700 00			
		O'Brien, Martin.....	700 00			
		Bergeon, Jos.....	700 00			
		McPeak, Wm.....	700 00			
		Kelly, M.....	700 00			
				5,600 00		
					560 00	
				462 50		
					1,012 50	
					700 00	
MONTREAL, LACHINE AND SOREL.....	Deals, &c.....	Malone, T., jun..... Malone, T., sen.....				
	Staves.....	Ferland, P.....				
	General culler.....	Total, Quebec..... Barsalo, Edward.....				
		Total Fees paid to Cullers.....			7,312 50	
					457 48	
					7,769 98	

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

APPENDIX B—Continued.

No. 3.—DETAILS of Cullers' Expenditure, for the Fiscal Year ended 30th June, 1894.

Office.	Names.	Nature of Service.	Deduction for Super-annuation.	Amounts Paid.	Total.	Grand Total.	
			\$ cts.	\$ cts.	\$ cts.	\$ cts.	
QUEBEC.	Patton, James	Supervisor of Cullers for the year.	36 00	1,764 00			
	Gowen, Edmund	Cashier and Accountant for the year.	19 96	980 04			
	Power, Richard	Chief Specification Clerk do	16 04	873 86			
	Whelan, W. F.	Specification Clerk do	15 00	735 00			
	DeMartigny, C. P. L.	do do	15 00	735 00			
	Gallagher, F.	do do	15 00	735 00			
	Belle-Rives, George	do do	6 32	483 68			
	Harney, Thomas	Messenger for the year	4 96	395 04			
		Total, Quebec Salaries.		128 28		6,621 72	
		<i>Contingencies.</i>					
	QUEBEC.	Foley, Mary	Charwoman		96 00		
Duggan, James		Night watchman.		35 00			
Gowen, E.		Cartage, telegrams, postage, washing towels, coal oil, &c.		41 34			
Quebec Post Office		Rent of drawer 1063		6 00			
Maguire, James		Plumber		32 45			
Behan, Bros.		Scrubbing, flannels, &c.		14 26			
Lemieux, Z.		Locksmith		13 00			
Fitzgerald, J.		Hoisting wood to Messenger's rooms		4 50			
Bell Telephone Co.		Rent		40 00			
LaRoche & Co.		Soap and toilet paper.		1 80			
Rancour, Noël		Ice		15 00			
Fitzgerald, J. & Co.		Cleaning snow off roof.		16 25			
Kelly, John		Joiner's work		10 25			
Holmes, Margaret		Cleaning offices, &c.		60 00			
McCallum, A. & Co.		Repairs to lock.		1 50			
Turgeon, P. L.		Brooms, dusters, &c.		12 25			
Guerard, L.		Packing furniture, &c.		18 97			
Quebec Corporation		Taxes on offices.		389 40			
Miller, M.		Ink, &c.		6 38			
Kane, J. R.		Brass lock, fitting, &c.		4 60			
Arnold, Thomas		Cleaning snow from premises		25 00			

Inland Revenues—Excise

Hearn, J. G.	Rent		740 00	
	Total, Quebec Contingencies			1,593 95
	<i>Cullers' Expenses.</i>			
Kelly, M.	Cullers' expenses		67 40	
Bergeron, Jos.	do		73 75	
O'Brien, M.	do		182 49	
Fredrick, A.	do		51 72	
McPeak, Wm.	do		214 98	
Dorval, Geo.	do		58 66	
Kelly, Ed.	do		88 68	
Kekendry, D.	do		273 84	
	Total Cullers' Expenses			975 22
	Total Quebec Expenditure			9,190 89
	<i>Paid to Retired Cullers.</i>			
	Superannuation			
Jobin, Jacques	do		200 00	
Morrisette, J.	do		200 00	
Lecknell, L.	do		100 00	
Demers, I.	do		200 00	
Feore, J. F.	do		200 00	
Dorval, P.	do		200 00	
Walsh, Wm.	do		200 00	
Hamel, A. F.	do		200 00	
Gibbon, M.	do		16 68	
Villeneuve, J.	do		200 00	
Bédard, Jér.	do		200 00	
McNaughton, J.	do		200 00	
Beaupré, N.	do		200 00	
Frenette, Jos.	do		200 00	
Malone, J. C.	do		200 00	
Brousseau, J. B.	do		200 00	
Duggan, Ed.	do		200 00	
Noel, Elie.	do		200 00	
Gilchen, T.	do		200 00	
McInenly, T.	do		200 00	
Lafontaine, J. S.	do		200 00	
Paery, T.	do		200 00	
Cauchy, C.	do		200 00	
Lynch, John.	do		400 00	
Vachon, J. B.	do		200 00	
Murphy, T.	do		200 00	
Demers, F. X.	do		200 00	
Munroe, Wm.	do		200 00	

APPENDIX B.—No. 3.—DETAILS of Cutlers' Expenditure, for the Fiscal Year ended 30th June, 1894—Continued.

Office.	Names.	Nature of Service.	Deduction for Super-annuation.	Amount Paid.	Total.	Grand Total.
			\$ cts.	\$ cts.	\$ cts.	\$ cts.
QUEBEC (Continued).	McCormick, J.	<i>Paid to Retired Cutlers—Concluded.</i>		200 00		
	Duggan, Wm.			200 00		
	Morency, D.			200 00		
	Malone, Thos.			50 00		
			Total paid to Retired Cutlers			
MONTREAL, LACHINE AND SOREL.		<i>Salaries.</i>				
	Daveluy, Geo.	Deputy Supervisor of Cutlers for the year.	18 00	882 00	882 00	
		Total, Salaries				
		<i>Contingencies.</i>				
	Roy, Adolphe.	Rent of office for the year.		99 96		
	do	Cleaning of office for the year.		36 00		
	City of Montreal.	Water taxes		10 00		
	Demers, E.	Ink and mucilage		1 80		
	Barsalo, P.	Specification clerk.		63 25		
	Kelly, E.	Travelling expenses		75 00		
Montreal Post Office	Post office drawer for the year.		4 00			
Stamps and Telegrams	Telegrams and stamps for the year.		5 75			
	Total, Contingencies			285 31	285 31	1,167 31
	Total, Montreal, Lachine and Sorel.					
THREE RIVERS.		<i>Salaries.</i>				
	Malone, T.	Deputy Supervisor of Cutlers for the year.	3 72	296 28		
	Gouin, W. J.	Specification clerk.	6 32	493 68		
		Total, Salaries	10 04			789 96

Inland Revenues—Excise.

Malone, T.				
Ogden, C. R.			129 00	
			1 50	
				130 50
				920 46
				25,015 32
				109 54
				25,124 86
				75 00
				25,199 86
				76 00
				25,124 86

Contingencies.

Travelling expenses
 Rent of post office box
 Total, Contingencies
 Total, Three Rivers
 Grand Total
 ADD—Printing
 Stationery
 Authorized disbursements (Less—Superannuation)
 ADD—Balance due by Supervisors, June 30, 1894
 LESS—Balance due by Supervisors, July 1, 1893
 Actual disbursements, agreeing with Statement No. 8, page 15

E. MIALLE,
Commissioner.

**INLAND REVENUE DEPARTMENT,
 OTTAWA, 20th September, 1894.**

APPENDIX B—Continued.

No. 4.—DISTRIBUTION of Seizures for the Year ended 30th June, 1894.

Divisions.	To whom paid.	Service.	Amounts paid.	Totals.
		<i>Ontario.</i>	\$ cts.	\$ cts.
Hamilton	Collector W. F. Miller ..	To pay informer penalty in Seizure No. 32.....		50 00
Ottawa.....	Officer C. Curless	For his portion of Seizure No. 107..	15 04	
		do do 108..	12 16	
		do do 109..	9 40	
		do do 110..	8 17	
		do do 111..	15 03	
		do do 112..	10 16	
		do do 113..	10 41	
		do do 114..	4 75	
		do do 116..	10 75	
	do R. Slattery	do do 117..	25 00	95 87
		Penalty imposed on Standard Cigar Co	25 00	
St. Catharines.	Collector C. A. Hesson..	To pay informer penalty in Seizure No. 14.....		50 00
Toronto	do W. C. Stratton.	do do 304..	25 00	
		do do 312..	2 50	
		do do 314..	5 00	
	Officer W. Henderson...	For his portion of Seizure No. 304..	13 68	32 50
		do do 305..	24 72	
	do Thos. Westman..	do do 304..	13 69	38 40
		do do 305..	24 73	
	Daniel Sweeney..	To pay informer penalty in Seizure No. 306.....		38 42
	do M. Shanacy.....	For his portion of Seizure No. 306.....		75 00
	do J. B. Blair.....	do do 309.....		42 25
	do G. W. Taylor....	do do 309.....		13 29
				13 29
		<i>Quebec.</i>		
Joliette	do C. Curless	For his portion of Seizure No. 114..	99 25	
		To pay informer penalty in Seizure No. 114..	100 00	199 25
Montreal.....	Collector H. Lawlor	do do 738..	25 00	
		do do 747..	5 00	
		do do 749..	5 00	
		do do 750..	5 00	
		do do 755..	25 00	
		do do 756..	25 00	
		do do 765..	5 00	
		do do 766..	5 00	
		do do 769..	5 00	
		do do 774..	25 00	
	Officer C. Curless	For his portion of Seizure No. 668..	24 75	130 00
		do do 672..	1 05	
		do do 674..	0 27	
		do do 681..	25 00	
		do do 683..	9 00	
		do do 702..	2 61	
		do do 708..	4 67	

Inland Revenues—Excise.

APPENDIX B.—No. 4.—Distribution of Seizures, 1898-94—Continued.

Divisions.	To whom paid.	Service.	Amounts paid.	Totals.
<i>Quebec—Continued.</i>			\$ cts.	\$ cts.
Montreal	Officer C. Curless	For his portion of seizure No. 709	4 67	
		do do 710	12 79	
		do do 712	7 00	
		do do 716	5 00	
		do do 717	25 53	
		do do 719	0 00	
		do do 721	33 72	
		do do 722	40 47	
		do do 723	30 35	
		do do 724	4 72	
		do do 725	29 44	
		do do 726	4 72	
		do do 727	4 72	
		do do 728	4 71	
		do do 729	4 67	
		do do 730	7 55	
		do do 731	4 67	
		do do 732	4 67	
		do do 733	4 67	
		do do 734	4 75	
		do do 735	4 75	
		do do 739	12 50	
		do do 740	5 00	
		do do 742	25 00	
		do do 749	9 75	
		do do 750	2 00	
		do do 751	5 50	
		do do 752	7 75	
		do do 754	7 00	
		do do 755	27 26	
		do do 756	86 25	
		do do 757	10 13	
		do do 758	7 55	
		do do 760	7 75	
		do do 761	22 00	
		do do 765	4 70	
		do do 766	13 57	
		do do 768	22 78	
		Penalty imposed on A. Beauchemin	25 00	
		do A. Cousineau	300 00	
		To pay informer penalty in Seizure General No. 2594	50 00	
		do do 2596½ & 2597	110 00	
			1,077 41	
	Officer L. Dumouchel	For his portion of Seizure No. 711 . . . . .	.....	19 55
	do E. Forest	do do 677	5 00	
		do do 711	19 55	
			24 55	
	do J. A. Watkins	do do 714	5 00	
		do do 736	10 00	
		do do 738	12 36	
		do do 747	3 00	
		do do 748	12 70	
		do do 749	9 76	
		do do 750	2 00	
		do do 763	5 00	
		do do 769	4 42	
		do do 770	1 55	
	do H. G. S. Dixon	do do 598 . . . . .	.....	65 79
				0 50

APPENDIX B.—No. 4.—Distribution of Seizures, 1893-94—Continued.

Divisions.	To whom paid.	Service.	Amounts paid.	Totals.
		<i>Quebec—Continued.</i>	\$ cts.	\$ cts.
Montreal.....	Officer G. S. Warren....	For his portion of Seizure No. 737..	12 00	
		do do 738..	12 37	
		do do 747..	3 00	
		do do 748..	12 70	
		do do 769..	4 42	
		do do 770..	1 55	
Quebec.....	do P. Fraser.....	Penalty imposed on F. X. Maillé.....		46 04
	Collector Geo. LaRue....	To pay informer penalty in Seizure No. 287..	50 00	25 00
		do do 315..	5 00	
		do do 325..	50 00	
		do do 334..	50 00	
		do do 335..	50 00	
		do do 336..	100 00	
		do do 339..	50 00	
		Penalty imposed on X. Emond.....	50 00	
		do N. Coulombe.....	50 00	
		do D. Asselin.....	50 00	
	Officer P. LaRue.....	For his portion of Seizure No. 276..	0 75	505 00
		do do 336..	47 50	
		do do 339..	21 02	
		Penalty imposed on D. Asselin.....	25 00	
	do C. Curless.....	do F. Vermette....	25 00	94 27
		For his portion of Seizure No. 306..	3 60	
		do do 307..	0 15	
		do do 311..	0 52	
		do do 312..	1 30	
	do J. Rouleau.....	do do 275..	18 56	30 57
		do do 284..	62 84	
		do do 313..	1 82	
	do O. Bourget....	do do 254..	0 31	83 22
		do do 262..	3 63	
		do do 275..	18 56	
		do do 281..	11 59	
		do do 291..	0 44	
		do do 299..	0 29	
		do do 305..	10 00	
		do do 315..	5 76	
		do do 322..	4 03	
		do do 324..	50 57	
		do do 325..	36 83	
		do do 326..	47 43	
		do do 327..	12 93	
		Penalty imposed on A. Toussaint....	25 00	
	do D. M. Cameron...	For his portion of Seizure No. 262..	3 62	227 37
		do do 281..	11 59	
		do do 291..	0 44	
	do Geo. Bourassa....	do do 276..	0 75	15 65
		do do 283..	7 98	
		do do 284..	62 84	
		do do 299..	0 28	
		do do 304..	6 00	
	Capt. A. Bernier..	do do 291..	.....	77 85
				0 43

Inland Revenues—Excise.

APPENDIX B.—No. 4.—Distribution of Seizures, 1893-94—Continued.

Divisions.	To whom paid.	Service.	Amounts paid.	Totals.	
		<i>Quebec—Continued.</i>	\$ cts.	\$ cts.	
Quebec—Con . . .	Officer A. Ross.	For his portion of Seizure No. 318 . .	1 75		
		do do 319 . .	11 50		
		do do 320 . .	2 41		
		do do 321 . .	2 18		
			17 84		
		Constable P. Dubé	do do 311 . .	0 47	
		Officer L. Lépine	do do 313 . .	1 83	
			do do 323 . .	0 47	
			2 30		
		do J. Sexton	do do 254 . .	0 32	
		do F. X. J. A. Toupin	do do 323 . .	0 47	
		do E. Trudel	do do 325 . .	36 82	
			do do 327 . .	12 92	
			49 74		
		do J. Dupuis	do do 334 . .	49 50	
			do do 336 . .	47 50	
			do do 339 . .	21 03	
			Penalty imposed on D. Asselin	25 00	
			143 03		
		Collector A. F. Simpson.	For his portion of Seizure No. 318 . .	5 00	
		do do 319 . .	25 00		
		do do 320 . .	5 00		
		do do 321 . .	5 00		
		do do 322 . .	5 00		
		45 00			
Sherbrooke	Est. of late F. X. Langlois	do do 326 . .	47 44		
	Collector A. F. Simpson.	To pay informer penalty in Seizure No. 48 . .	5 00		
		do do 74 . .	25 00		
		do do 75 . .	5 00		
		do do 76 . .	5 00		
		do do 77 . .	5 00		
		do do 78 . .	5 00		
		do do 88 . .	5 00		
		do do 89 . .	5 00		
		do do 90 . .	5 00		
		do do 92 . .	25 00		
		do do 95 . .	25 00		
		do do 96 . .	25 00		
			140 00		
		Officer C. Curless	For his portion of Seizure No. 69 . .	26 00	
			do do 70 . .	26 62	
			52 62		
		Officer E. S. Foss	do do 40 . .	13 26	
			do do 42 . .	13 95	
			do do 43 . .	3 25	
		do do 44 . .	2 54		
		do do 46 . .	13 47		
		do do 47 . .	14 30		
		do do 50 . .	29 60		
		do do 51 . .	2 15		
		do do 52 . .	2 69		
		do do 53 . .	1 73		
		do do 56 . .	3 29		
		do do 57 . .	13 87		
		do do 58 . .	2 66		
		do do 59 . .	2 71		
		do do 60 . .	4 15		
		do do 61 . .	3 09		
		do do 62 . .	2 75		
		do do 63 . .	1 58		

APPENDIX B.—No. 4.—Distribution of Seizures, 1893-94—Continued.

Divisions.	To whom paid.	Service.	Amounts paid.	Totals.
<i>Quebec—Continued.</i>			\$ cts.	\$ cts.
Sherbrooke.....	Officer E. S. Foss	For his portion of Seizure No. 64.....	2 06	146 64
	do do	do do 65.....	13 54	
	Officer A. Putney.....	do do 66.....	8 85	
	do do	do do 67.....	11 70	
	do do	do do 68.....	11 20	
	do do	do do 72.....	11 78	
	do do	do do 85.....	11 50	
	do do	do do 87.....	10 50	
	do A. Ross.....	do do 74.....	11 25	
	do do	do do 75.....	2 27	
	do do	do do 76.....	3 90	
	do do	do do 77.....	2 27	
	do do	do do 78.....	2 21	
	do do	do do 88.....	1 75	
	do do	do do 89.....	2 38	
	do do	do do 90.....	3 32	
	do do	do do 92.....	11 50	
	do D. J. Walsh.....	To pay informer penalty in Seiz. No. 43	5 00	40 85
	do do	do do 44.....	5 00	
	do do	do do 53.....	5 00	
do do	do do 58.....	5 00		
do do	do do 59.....	5 00		
do do	do do 62.....	5 00		
do W. McGowan.....	For his portion of Seizure No. 79.....	12 00	35 00	
do do	do do 81.....	11 50		
do do	do do 82.....	11 50		
do do	do do 83.....	11 50		
do do	do do 84.....	11 50		
St. Hyacinthe..	Collector A. F. Simpson..	To pay informer penalty in Seiz. No. 41.....	59 13	58 00
	Officer C. Curless.....	For his portion of Seizure No. 42.....	38 77	
	do do	do do 43.....	60 21	212 23
	do do	do do 44.....	41 62	
	do do	do do 45.....	12 50	
do J. A. Watkins.....	For his portion of Seizure No. 37.....	44 50	11 00	
do A. Barry.....	do do 41.....	10 11		
St. Johns.....	do C. Curless.....	do do 29.....	10 12	
	do do	do do 43.....	57 24	
	do do	do do 46.....	4 85	
	do do	do do 48.....	4 85	
	do do	do do 49.....	4 85	
	do do	do do 50.....	4 85	
	do do	do do 57.....	4 85	
	Collector A. F. Simpson..	To pay informer penalty in Seiz. No. 73.....	10 89	96 87
	Officer W. McGowan.....	For his portion of Seizure No. 37.....	9 89	
	do do	do do 39.....	9 93	
	do do	do do 40.....	9 93	
	do do	do do 41.....	9 93	
	do do	do do 42.....	6 60	
	do do	do do 47.....	11 50	
	do do	do do 53.....	0 35	
do do	do do 62.....	11 50		
do do	do do 63.....	11 50		
do do	do do 67.....	23 00		
do do	do do 68.....	11 20		
do do	do do 72.....	11 78		
do do	do do 85.....	11 50		
do do	do do 87.....	10 50		

Inland Revenues—Excise.

APPENDIX B.—No. 4—Distribution of Seizures, 1893-94—Continued.

Divisions.	To whom paid.	Service.	Amounts paid.	Totals.	
		<i>Quebec—Concluded.</i>			
St. Johns—Con.	Officer Wm. McGowan...	For his portion of Seizure No. 69.....	9 87	136 08	
		do do 72.....	21 12		
	do A. Barry.....	do do 54.....	10 00		
		do do 55.....	10 00		
		do do 56.....	22 50		
		do do 57.....	0 50		
		do do 59.....	10 00		
		do do 61.....	11 75		
		do do 65.....	12 00		
		do do 66.....	4 50		
	do D. J. Walsh.....	do do 68.....	11 00		
		do do 72.....	21 13		
	Terrebonne....	do C. Curless.....	do do 73.....		35 35
			do do 36.....		24 87
To pay informer penalty in Seiz. No. 36		51 00			
do J. A. Watkins...		For his portion of Seizure No. 36.....	10 00		
do A. Fiset.....		do do 33.....	10 00		
Three Rivers...	do Desroches.....	To pay informer penalty in Seiz. No. 37.....			
		do do 74.....	5 96		
	do C. Curless.....	do do 73.....	3 01		
		do do 75.....	3 00		
		do do 76.....	3 00		
		do do 77.....	2 99		
		do do 78.....	3 00		
Sorel.....	do C. Curless.....	do do 80.....	24 45		
		do do 54.....	25 00		
		do do 55.....	34 43		
		<i>New Brunswick.</i>			
St. John.....	do J. R. McCloskey.	For his portion of Seizure No. 46.....	8 10	14 66	
		do do 48.....	6 56		
	Collector R. Atherton...	do do 52.....	5 00		
Chatham....	Officer C. Curless.....	do do 55.....	5 00		
	do C. Curless.....	do do 9.....	7 75		
		do do 10.....	3 75		
		<i>Nova Scotia.</i>			
Halifax.....	do C. W. Blethen...	For his portion of Seizure No. 105.....	4 75	63 01	
		do do 111.....	4 75		
		do do 116.....	0 57		
		do do 119.....	52 94		
	Messenger A. Gorman...	do do 105.....	4 75		
		do do 111.....	4 75		
		do do 116.....	0 56		
	Officer J. T. Kelly.....	do do 30.....	10 00		
		do do 31.....	5 95		
		do do 33.....	13 72		
do do 57.....		7 25			

APPENDIX B.—No. 4.—Distribution of Seizures, 1893-94—Concluded.

Divisions.	To whom paid.	Service.	Amounts paid.	Totals.
		<i>Nova Scotia—Concluded.</i>	\$ cts.	\$ cts.
Halifax—Con.	Officer J. T. Kelly.....	For his portion of Seizure No. 58....	7 25	
		do do 59....	11 76	
		do do 60....	11 51	
		do do 61....	11 00	
		do do 121....	3 18	
		do do 122....	1 05	
		do do 123....	7 73	
		do do 124....	14 24	
		do do 125....	12 61	
		do do 126....	13 61	
		do do 127....	11 68	
		do do 128....	7 68	
		do do 129....	7 68	
		do do 130....	10 18	
		do do 131....	9 93	
		do do 132....	9 18	
		do do 133....	9 93	
		do do 134....	10 05	
				207 17
	Messenger A. Gorman...	do do 110....		4 87
	Officer C. W. Blethen...	do do 110....		4 88
Cape Breton...	do J. T. Kelly.....	do do 32....		7 75
Pictou.....	do C. Curless....	do do 46....		1 25
	do Geo. J. Campbell.	do do 46....		1 25
		<i>Prince Edward Island.</i>		
Charlottetown.	do J. T. Kelly.....	For his portion of Seizure No. 14....	9 60	
		do do 15....	9 60	
		do do 16....	9 60	
		do do 17....	12 50	
				41 30
		Grand Total....		5,335 45

RECAPITULATION.

Ontario.....	\$ 499 02
Quebec.....	4,450 63
New Brunswick.....	44 26
Nova Scotia.....	300 24
Prince Edward Island.....	41 30
	\$5,335 45

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

APPENDIX B—Continued.

No. 5.—DETAILS of Sundry Minor Expenditures, for the Fiscal Year ended
30th June, 1894.

To whom paid.	Services.	Amounts paid.	Totals.
<i>Minor Revenues.</i>		\$ cts.	\$ cts.
Plant, Barry	Professional services <i>re</i> ferry license for St. Leonard's and Van Buren ferry	15 00	
Champness, Fred.	Commission of 5 per cent on collection of \$1,680, two years' interest on purchase price of Government telegraph line between Dunmore and Fort McLeod	84 00	
The "Advertiser"	Advertising tenders for ferry privilege between Papineauville and Brown's Wharf	4 72	
The "Watchman"	do do do	6 50	
	Total		110 22
<i>Inspection of Staples.</i>			
Hadrill, Geo., Secretary of Montreal Board of Trade	To meet expenses of Board to determine the standards of flour and meal	573 38	
Bell, Chas. N., Secretary of Winnipeg Board of Trade	To meet expenses of Board to determine grain standards west of Lake Superior	1,028 25	
Willis, Edgar A., Secretary of Toronto Board of Trade	To meet expenses of Board to determine the grain standards	439 45	
Vincent, J. L.	Express charges in connection with flour samples sent to various inspection divisions	52 55	
Costigan, H. A.	Freight on flour samples from Montreal	6 23	
Canadian Express Co.	Express charges on samples of grain from the Northwest, sent to High Commissioner, London, England	7 47	
Canadian Pacific Railway	Freight on six samples of grain from Winnipeg	1 66	
Stratton, W. C.	Cartage on flour standards	0 30	
Cook, F.	Bags and samples supplied to the Toronto Board of Trade	3 35	
Ryan, Edward	To pay Messrs. Lyons & Co. professional services <i>in re</i> Regina <i>vs.</i> Walsh	71 00	
	Less—Sale of old flour samples	2,183 64 18 61	
	Total		2,165 03

APPENDIX B.—No. 5.—Details of Sundry Minor Expenditures, &c.—Continued.

To whom paid.	Services.	Deduction for Superannuation.	Amounts paid.	Totals.
		\$ cts.	\$ cts.	\$ cts.
<i>Adulteration of Food.</i>				
Macfarlane, Thomas . . .	Salary as Chief Analyst for the year.	43 96	2,156 04	
McGill, A.	do Assistant Analyst for the year.	34 04	1,665 96	
Babington, F. W.	do 2nd do do	25 96	1,274 04	
Tourchot, A. L.	do 3rd do do	22 04	1,077 96	
Casey, Thomas.	do Clerk in laboratory, from 1st July to 31st March	16 47	808 47	
Watson, James.	do Clerk in laboratory for the year.	16 04	783 96	
do	do Food Inspector do	4 00	196 00	
Costigan, J. J.	do do do do	5 00	245 00	
Ferguson, J. C.	do do do do	3 00	147 00	
Kelly, E.	do do do do	6 00	294 00	
Code, A.	do do do do	3 13	153 12	
Kidd, Thomas.	do do do do	4 00	196 00	
	Total salaries.	183 64		8,997 55
<i>Contingencies.</i>				
Macfarlane, Thomas . . .	Travelling and other expenses.		589 00	
Watson, James	do do		364 04	
Kidd, Thomas	do do		406 31	
Costigan, J. J.	do do		330 78	
Ferguson, J. C.	do do		115 64	
Kelly, E.	do do		183 07	
Code, A.	do do		116 82	
La Rue, G.	do do		5 43	2,111 09
Harrison, F. T.	Allowance under the Act for retaining fee.		200 00	
do	do do materials used in analysis		100 00	
do	Fees for analysis.		774 70	1,074 70
Bowman, M.	Allowance under the Act for retaining fee.		200 00	
do	do do rent.		100 00	
do	do do materials used in analysis		100 00	
do	Fees for analysis.		736 00	1,136 00
Best, W. F.	Allowance under the Act for retaining fee.		200 00	
do	do do rent.		100 00	
do	do do materials used in analysis		100 00	
do	Fees for analysis.		654 00	1,054 00
Ellis, W. H.	Allowance under the Act for retaining fee		200 00	
do	do do rent.		100 00	
do	do do materials used in analysis		100 00	
do	Fees for analysis.		817 00	1,217 00
Fiset, M.	Allowance under the Act for retaining fee.		200 00	
do	do do rent.		25 00	
do	do do materials used in analysis		100 00	
do	Fees for analysis.		744 66	1,069 66
Valade, F. X.	Allowance under the Act for retaining fee.		200 00	
do	do do rent.		100 00	
do	do do materials used in analysis		100 00	
do	Fees for analysis.		770 32	1,170 32

Inland Revenues—Excise.

APPENDIX B.—No. 5.—Details of Sundry Minor Expenditures, &c.—Continued.

To whom paid.	Services.	Amounts paid.	Totals.
<i>Contingencies—Continued.</i>		\$ cts.	\$ cts.
Kendrick, E. B.	Allowance under the Act for retaining fee.	200 00	
do	do do rent.	100 00	
do	do do materials used in analysis	100 00	
do	Fees for analysis.	737 34	
do	Freight on box from Ottawa.	2 75	
			1,140 09
Edwards J. B.	Allowance under the Act for retaining fee.	200 00	
do	do do rent.	25 00	
do	do do materials used in analysis	100 00	
do	Fees for analysis.	1,205 66	
		1,530 66	
	LESS—		
	Paid Miss Davidson for assistance from 22nd July to 21st Oct., 1893. \$ 125 01		
	Paid Miss Tyrrell, from 1st Oct., 1893, to 31st May, 1894, 8 mos. 333 28		
	Paid G. Rosser, for plumbing. 34 08		
	do Lyman, Sons & Co., for chemicals supplied. 64 76		
	do H. J. Dart & Co., for goods supplied. 64 26		
		621 39	
			909 27
Tyrrell, Miss M. J.	Services, assisting J. B. Edwards, from 1st Oct., 1893, to 31st May, 1894, 8 mos. \$ 333 28		
do	Services in laboratory at Ottawa from 1st July to 30th Sept., 1893, 3 mos. 124 98		
do	Travelling expenses from Ottawa to Montreal	7 00	
			465 26
Davidson, Miss E.	Services, assisting J. B. Edwards, from 22nd July to 21st Oct. \$ 125 01		
do	Services in Quebec laboratory from 22nd to 31st Oct. 16 13		
do	Travelling expenses from Montreal to Quebec	6 50	
			147 64
Wright, Miss S. E.	Services in laboratory, Ottawa, 9 mos., from 1st Oct., 1893, to 30th June, 1894. 375 03		
Mayon, D. J.	Services in laboratory, Ottawa: 25 days Oct., 15 days Nov., 15 days Dec., 1893. 60 20		
Rosser, G.	Plumbing, &c., Montreal laboratory	34 08	
Lyman, Sons & Co.	Goods supplied to do \$ 64 76		
do	Chemical apparatus and materials for labor- atory. 410 16		
		474 92	
Dart, H. J., & Co.	Goods supplied to Montreal laboratory.	64 26	
Borden, Ritchie & Co.	Professional services in re Regina vs. Curry. \$ 3 00		
do	do Regina vs. McKenzie & Boomers. 9 18		
			12 18
Hall, Hon. John S.	do Regina vs. Lachance \$ 21 60		
do	do Regina vs. Robert 20 80		
do	do Regina vs. Montreal Union Abattoir. 8 00		
			50 40
O'Connor & Hogg	do Regina vs. Skinner & Co. 15 00		
Hodgins, F. E.	do Regina vs. Abbott. 36 05		
Meredith, T. G.	do Regina vs. Pearce & Co. 3 00		
Bender, A. J.	do Regina vs. Bélanger 10 00		
Gauvreau, G.	Attending meeting of Board for Examination of can- didates for public analyst. 82 00		
	do do 125 20		
Girdwood, Dr. G. P.	Travelling expenses. 7 00		
Stratton, W. C.	Laboratory supplies and instruments. 248 23		
Gerhardt, C.	Paid L. Philbert for cleaning office for Nov., Dec., 1893, and 15 days in Jan., 1894. 15 35		
LaRue, George.			

APPENDIX B.—No. 5.—Details of Sundry Minor Expenditures, &c.—*Concluded.*

To whom paid.	Services.	Amounts paid.	Totals.
	<i>Contingencies—Concluded.</i>	\$ cts.	\$ cts.
Stephens, H. M.	Furnishings for laboratory in Quebec.	193 24	
Rousseau, David. . .	Furnishing, plumbing, &c., in Quebec labor- atory.	\$ 154 30	
do	1 still and tank for Quebec laboratory.	6 00	
McCormick, R. A.	Chemical apparatus and materials for laboratory.	160 30	
Mitchell, Robert, & Co.	do do	15 49	
Eimer & Amend.	do do	69 05	
Murphy, J. J.	do do	352 02	
Gooderham & Worts. . .	Proof spirits for the laboratory.	22 64	
Canadian Pacific Ry. . .	Freight on furniture from Quebec for laboratory.	33 10	
Rosenthal, A.	One stop clock for laboratory.	12 36	
Simpson, A. F.	Postage and registration on pamphlets.	7 00	
Birkett, T.	Hardware.	33 60	
McMorran, R. M. . . .	Glass linen, towelling, &c., for laboratory.	3 50	
Pritchard & Andrews . .	12 brooch badges.	22 13	
Whitehead, Mrs. J. . . .	Cleaning instruments, sample bottles, &c., for the year	7 20	
Hagan, James.	Petty expenses, freight, cartage, &c.	162 00	
McCullough, Anthony. .	do do	26 35	
		115 99	3,461 77
	LESS—Sale of soda solution.		23,341 40
			1 75
	Total.		23,339 65
	Grand Total.		25,614 90
	ADD—Printing.	387 72	
	Stationery.	138 69	526 41
	Actual disbursements agreeing with Statement No. 12, page 17.		26,141 31
RECAPITULATION.			
	Minor expenditure.	\$ 110 22	
	Inspection of staples.	2,165 03	
	Adulteration of food.	23,339 65	
		<u>\$25,614 90</u>	
E. MIALL, <i>Commissioner.</i>			
INLAND REVENUE DEPARTMENT, OTTAWA, 20th September, 1894.			

Inland Revenues—Excise.

APPENDIX B—Continued.

No. 6.—DETAILS of Departmental Expenditure for the Year ended 30th June, 1894.

Name.	Rank.	Period.	Deduction for Superannuation.		Amounts paid.		Total.
			\$	cts.	\$	cts.		$	cts.
Wood, Hon. John F.	Controller	For the year			5,000	00	
Miall, E.	Commissioner	do	64	00	3,136	00	
Gerald, W. J.	Asst. Commissioner and Insp. of Tobacco Factories	do	60	00	2,940	00	
Robins, P. M.	Chief Accountant	do	48	00	2,352	00	
Himsworth, Wm.	Secretary	do	45	00	2,205	00	
Campeau, F. R. E.	Assistant Accountant	do	36	00	1,764	00	
Heron, W. L.	Statistical Clerk	do	36	00	1,764	00	
Valin, J. E.	Accounts Branch Clerk	do	36	00	1,764	00	
Hall, C. R.	do	do	36	00	1,764	00	
Carter, Wm.	Assistant Secretary	do	33	00	1,617	00	
Nettle, R.	Statistical Clerk	do			1,550	00	
Blatch, F. K.	Clerk of Supplies	do	28	00	1,372	00	
Shaw, J. F.	Statistical Clerk	do	28	00	1,372	00	
Doyon, J. A.	Accounts Branch Clerk	do	28	00	1,372	00	
Newby, F.	Correspondence Branch Clerk	do	28	00	1,372	00	
Byrnes, J.	Accounts Branch Clerk	do	28	00	1,372	00	
Quain, R.	do	do	27	00	1,323	00	
McCarthy, J. P.	Correspondence Branch Clerk	do	25	00	1,225	00	
Fowler, George	Stamps Branch Clerk	do	24	50	1,200	50	
Burns, John	Weights and Measures Clerk	do	23	75	1,163	75	
Dunne, J. P.	do	do	23	50	1,151	50	
Brunel, George	Accounts Branch Clerk	do	20	00	980	00	
Brown, J. F.	do	From 1st July to 28th Feb.	13	28	653	36	
Winter, C. F.	Clerk	For the year	19	00	931	00	
do	Private Secretary	do			600	00	
McCullough, A.	Messenger	do	5	91	466	59	
Total, Salaries			715	94			42,410 70
<i>Contingencies.</i>							
Potvin, Napoleon	Messenger for the year				400	00	
Hagan, James	do				400	00	
Deane, Miss A. M.	Services as Extra Clerk, from 18th June, 1893, to 1st Jan., 1894, at \$400 per annum				213	31	
Baine, Miss L.	Services as Extra Clerk, for 1 month, from 21st July, to 20th Aug., 1893				33	33	
Smith, Miss E.	Services as Extra Clerk, for the year, at \$1.50 per day				547	50	
Halliday, W. A.	Services as Extra Clerk, from 20th March to 30th June, at \$1.50 per day				154	50	
Fréchette, A.	Translation, proof-reading, &c.				4	70	
Higman, O.	Professional services rendered in connection with preparation of Bill for Inspection of Electric Lighting.				300	00	
Wood, Hon. John F.	Travelling expenses				400	00	
Miall, Edward	do				485	90	
Gerald, W. J.	do				311	56	
Himsworth, Wm.	do				29	76	
Winter, Charles F.	do				216	92	
Doyon, J. A.	do				43	70	
The Empire, Toronto.	Subscription				30	00	
United Canada, Ottawa.	do				1	50	

APPENDIX B.—No. 6.—Details of Departmental Expenditure—Continued.

Name.	Services.	Amounts paid.	Totals.
		\$ cts.	\$ cts.
<i>Contingencies—Continued.</i>			
The Daily Sun, St. John, N.B.	Subscription 2 years	10 00	
Grip, Toronto	do	2 00	
Daily Globe, Toronto	do	6 00	
Moniteur Acadien, Shediac, N.B.	do 2 years	4 50	
Richmond Guardian, Quebec	do	3 00	
The Courier, Brantford	do	5 00	
Progrès du Saguenay, Chicoutimi	do	5 00	
The Western World, Winnipeg	do	2 00	
Fredericton Farmer, Fredericton	do 2 years	2 00	
Brandon Mail, Brandon	do	4 00	
The Critic, Halifax	do	3 00	
The Gazette, Montreal	do	24 00	
The Standard, Blyth, Ont	do	3 00	
The Examiner, Charlottetown	do	8 00	
Presbyterian Witness, Halifax	do	3 50	
Regina Leader, Regina, N.W.T.	do	5 50	
Le Prix Courant, Montreal	do	3 00	
The World, Chatham, N.B.	do 2 years	4 00	
Almonte Times, Almonte	do do	2 00	
Canadian Manufacturer, Toronto	do	1 00	
Daily Citizen, Ottawa	do 4 copies	24 00	
Scandinavian Canadian, Winni- peg	do	3 00	
Welland Telegraph, Welland, O.	do 5 years	5 00	
Evening Telegram, Toronto	do	3 00	
Brampton Times, Brampton	do 2 years	3 00	
Evening Journal, Ottawa	do 4 copies	20 00	
La Patrie, Montreal	do	3 00	
The Catholic Register, Toronto	do	2 00	
The Intelligencer, Belleville	do	5 00	
The Daily Mail, Toronto	do	6 00	
Le Monde, Montreal	do 3 copies	9 00	
The Free Press, Ottawa	do	5 00	
The Trade Review, Montreal	do	2 00	
Daily Mercury, Quebec	do	3 00	
The Times, Moncton, N.B.	do	8 00	
Le Sorelois, Sorel	do	2 00	
The Sorel News, Sorel	do	1 50	
L'Événement, Quebec	do	3 00	
Paris-Canada	do 3 years	7 50	
The World, Toronto	do	5 00	
The Oxford Tribune, Ingersoll	do 4 years	6 00	
The Herald, Halifax	do	5 00	
The Evangelical Churchman, Toronto	do	1 00	
Le Canada, Ottawa	do	4 00	
The Weekly Colonist, Victoria	do	2 00	
Ridgway, Win., London, Eng.	do to Journal of Gas Lighting, "Chemical News," &c	14 11	
The Daily News, Kingston	do	6 00	
The Times, Brockville	do	4 00	
La Vallée de L'Ottawa, Ottawa	do	2 00	
The Daily News, Berlin	do	4 00	
The Daily Herald, Montreal	do	6 00	
Catholic Record, London	do	2 00	
Commercial and Financial Chro- nicle, New York	do	10 00	
The National, Toronto	do	2 00	
Daily Herald, Guelph	do	4 00	
Casket, Antigonish	do 3 years	3 00	
The Equity, Shawville	do	1 00	

Inland Revenues—Excise.

APPENDIX B.—No. 6.—Details of Departmental Expenditure—Continued.

Name.	Services.	Amounts paid.	Totals.
	<i>Contingencies—Continued.</i>	\$ cts.	\$ cts.
La Minerve, Montreal.....	Subscription	10 00	
The Free Press, Acton, Ont.	do	1 00	
The Advance, Barrie.....	do	4 00	
The North-west Review; Winni- peg	do 3 years	6 00	
Le Quotidien, Lévis, Que.....	do	2 50	
The Daily Witness, Montreal....	do	3 00	
Courrier du Canada, Que.....	do	3 00	
Free Press, Winnipeg.....	do	8 00	
The Tribune, Minnedosa.....	do	1 50	
Union Standard, Thornbury.....	do	1 00	
The Mining Review, Ottawa....	do	6 00	
The Investigator, Toronto.....	do	1 50	
The Springhill News, Springhill, N.S.....	do	1 00	
The Advocate, Toronto.....	do 2 copies.....	6 00	
The Muskoka Herald, Brace- bridge.....	do 2 years.....	2 50	
Canadian Baptist, Toronto....	do	1 75	
Volksblatt, New Hamburg....	do 2 years.....	3 00	
Journal of Commerce, Montreal.	do	2 00	
The Sentinel, Toronto.....	do	2 00	
The Planet, Chatham, Ont.....	do	1 00	
The Times, Liverpool, N.S.....	do	1 50	
Canadian Gazette, London, Eng	do	4 38	
The News, Smith's Falls, Ont...	do	2 50	
Dominion Oddfellow, Toronto...	do	4 50	
Dufferin Post, Orangeville, Ont.	do	1 50	
Nor' Wester, Winnipeg.....	do	10 50	
The Spectator, Hamilton.....	do	6 00	
The Postmaster, Ottawa.....	Postage for the year	37 83	
The Bell Telephone Co.....	Telephone for the year	39 55	
Canadian Pacific Railway Co's Telegraph	Telegraph account for the year.....	260 29	
Great North-western Telegraph Co	do do	154 96	
The Queen's Printer.....	Stationery	866 41	
do	Books	33 40	
do	Printing	1,021 42	
do	Lithographing.....	100 60	
do	Parliamentary publications.....	60 25	
Pritchard & Andrews, Ottawa...	Repairing model dater for accountant.	0 75	
Canadian Express Co.....	Express charges for the year	10 55	
Dominion Express Co.....	do do	14 60	
Beaupré, H.....	Cab-hire	3 00	
Lavergne, L.....	do	1 25	
Nichol, S.....	do	1 25	
Hurtubise, W.....	do	1 00	
Gardner, W.....	do	2 50	
Tassé, A.....	do	1 00	
Maveitty, Mrs.....	Washing towels	44 00	
Donovan, J.....	Cartage for the year	79 40	
Storr, A. M.....	do	5 30	
Sproule, W. H.....	Repairing clocks.....	1 00	
Bate & Co.....	Sundries for the department.....	6 54	
Shaw, C. S., & Co.....	do do	1 75	
Esmonde, J. P. & F. W.....	do do	20 60	
Masson & Co.....	do do	1 00	
Brook, James A., & Co.....	do do	8 60	

APPENDIX B.—No. 6.—Details of Departmental Expenditure—*Concluded.*

Name.	Services.	Amounts paid.	Totals.
	<i>Contingencies—Concluded.</i>	\$ cts.	\$ cts.
Jones, John	Sundries for the department	2 50	
McCullough, A.	Sundry petty expenses	14 32	
	Total, Departmental Contingencies ..		6,762 59
	Authorized disbursements (less superannua- tion)		49,173 29
	ADD—Balance due 30th June, 1894		16 66
			49,189 95
	LESS—Balance due 1st July, 1893		16 66
	Actual disbursements agreeing with State- ment No. 17, page 24		49,173 29

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

Inland Revenues—Excise.

APPENDIX B—Continued.

No. 7.—DETAILS of Expenditure for Weights and Measures for the Year ended 30th June, 1894.

To whom paid.	Services.	Deduction for Superannuation.	Amounts paid.	Totals.
		\$ cts.	\$ cts.	\$ cts.
<i>Belleville.</i>				
Johnson, Wm	Salary as Inspector for the year	20 58	1,012 71	
Slattery, Thos	do Mechanical Inspector for the year ..	13 96	686 04	
Irwin, S.	do Assistant do	12 00	588 00	
	Salaries	46 54	2,286 75	
	Contingencies		586 60	
				2,873 35
<i>Hamilton.</i>				
McKenzie, T. H.	Salary as Inspector, 1st July to 22nd May	18 64	1,142 26	
Freed, A. T.	do do 23rd May to 30th June		150 52	
McDonald, J.	do Assistant Inspector for the year	16 04	783 96	
Marantette, A.	do do do	16 04	783 96	
Magness, R.	do do 1st July to 31st Aug.	3 00	147 00	
Laidman, R. H.	do do for the year	13 96	686 04	
Beattie, Thos	do do do	13 04	636 96	
Fitzgerald, E. W.	do do do	13 96	686 04	
Wheatley, A. E.	do do do	12 00	588 00	
	Salaries	106 68	5,604 74	
	Contingencies		533 45	
				6,138 19
<i>Kingston.</i>				
Macdonald, J. A.	Salary as Inspector for the year	24 00	1,176 00	
Whittaker, W. W.	do Assistant Inspector for the year	12 00	588 00	
Giffin, W. W.	do do do	12 00	588 00	
	Salaries	48 00	2,352 00	
	Contingencies		763 70	
				3,115 70
<i>London.</i>				
Egan, Jas	Salary as Inspector for the year	24 00	1,176 00	
Coughlin, D.	do Mechanical Inspector for the year ..	16 04	783 96	
Thomas, J. S.	do Assistant do do	13 96	686 04	
	Salaries	54 00	2,646 00	
	Contingencies		693 54	
				3,339 54
<i>Orillia.</i>				
Bolster, Geo. I.	Salary as Inspector for the year	19 96	980 04	
Lyons, John	do Assistant Inspector for the year	16 04	783 96	
Elliott, T. H.	do Mechanical do do	15 08	484 92	
	Salaries	51 08	2,248 92	
	Contingencies		643 00	
				2,891 92
<i>Ottawa.</i>				
Code, A.	Salary as Inspector for the year	24 00	1,176 00	
Cosgrove, J.	do Assistant Inspector for the year	13 96	686 04	
Gorman, M.	do do do	12 00	588 00	
Lynch, P.	do do do	6 32	493 68	
	Salaries	56 28	2,943 72	
	Contingencies ..		1,201 89	
				4,145 61

APPENDIX B.—No. 7.—Details of Weights and Measures Expenditure—*Con.*

To whom paid.	Services.	Deduction for Superannuation	Amounts paid.	Totals.
		\$ cts.	\$ cts.	\$ cts.
<i>Toronto.</i>				
Piper, H	Salary as Inspector for the year	25 96	1,274 04	
Milligan, R. J.	do Assistant Inspector for the year	15 00	735 00	
Wright, R. J.	do do do	15 00	735 00	
Todd, Thos	do do do	12 00	588 00	
	Salaries	67 96	3,332 04	
	Contingencies		811 77	4,143 81
<i>Windsor.</i>				
Hayward, W. J.	Salary as Inspector for the year	24 00	1,176 00	
Hughes, R. A.	do Assistant Inspector for the year	12 00	588 00	
	Salaries	36 00	1,764 00	
	Contingencies		830 50	2,394 50
<i>Montreal.</i>				
Chalut, J. O.	Salary as Inspector for the year	31 96	1,568 04	
Daoust, J. A.	do Assistant Inspector for the year	15 96	697 95	
Dorion, J. T.	do do do	16 04	783 96	
Gervais, S.	do do do	16 04	783 96	
Dillon, S.	do do 1st July to 31st May	12 76	628 87	
Richard, J. U.	do do for the year	13 96	686 04	
Baker, J. S.	do do do	13 96	686 04	
Hébert, J. A. P.	do do do	12 00	588 00	
Tomlinson, W. W.	do do do	6 32	493 68	
Fournier, L. A.	do do 1st to 30th June	1 25	40 41	
	Salaries	140 25	6,956 95	
	Contingencies		1,036 18	7,993 13
<i>Quebec.</i>				
Bourassa, P. E.	Salary as Inspector for the year	24 00	1,176 00	
Kelly, M. J.	do Assistant Inspector for the year	16 95	832 98	
Pinhey, H.	do Mechanical do		600 00	
Chabot, F. X.	do Assistant do do	12 00	588 00	
Petit, J. B.	do do do	6 32	493 68	
Guay, A.	do do do	6 32	493 68	
Moreau, A.	do Caretaker	6 00	294 00	
	Salaries	71 59	4,478 34	
	Contingencies		1,383 84	5,862 18
<i>Three Rivers.</i>				
Olivier, J. A.	Salary as Inspector for the year	24 12	914 54	
	Insurance \$61.30			
Provost, J. J.	do Assistant Inspector for the year	13 96	686 04	
Mongeon, C.	do do do	6 32	493 68	
	Insurance \$61.30			
	Salaries	44 40	2,094 26	
	Contingencies		241 18	2,335 44

Inland Revenues—Excise.

APPENDIX B.—No. 7.—Details of Weights and Measures Expenditure—*Con.*

To whom paid.	Services.	Deduction for Superannuation.	Amounts paid.	Totals.
	<i>Frederickton.</i>	\$ cts.	\$ cts.	\$ cts.
Freeze, E. C.	Salary as Inspector, 1st July to 31st Oct.	6 64	326 68	
Bois, Geo. A.	do Aast. Inspector, 1st July to 28th Feb.	8 00	392 00	
	Salaries	14 64	718 68	
	Contingencies		32 66	751 34
	<i>King's.</i>			
Scovil, W. B.	Salary as Inspector for the year	16 04	783 96	
Richard, D.	do Assistant Inspector for the year	12 00	588 00	
	Salaries	28 04	1,371 96	
	Contingencies		293 03	1,664 99
	<i>St. John.</i>			
Wilmot, J. B. ...	Salary as Inspector for the year	24 00	1,176 00	
Cowan, E.	do Assistant Inspector for the year.	12 00	588 00	
Bois, Geo. A.	do do 1st Mar. to 30th June	4 00	196 00	
	Salaries	40 00	1,960 00	
	Contingencies		142 37	2,102 37
	<i>Cape Breton.</i>			
Tremaine, L. E. ...	Salary as Inspector for the year	16 00	784 00	
	Contingencies		202 85	986 85
	<i>Halifax.</i>			
Ryan, J. B.	Salary as Inspector for the year	19 96	980 04	
Kelly, E.	do Assistant Inspector for the year.	12 00	588 00	
	Salaries	31 96	1,568 04	
	Contingencies		726 25	2,294 29
	<i>Pictou.</i>			
McKay, J.	Salary as Inspector for the year	18 00	882 00	
Chisholm, J. J.	do Assistant Inspector for the year.	12 00	588 00	
	Salaries	30 00	1,470 00	
	Contingencies		149 17	1,619 17
	<i>Yarmouth.</i>			
Allison, C.	Salary as Inspector for the year	20 00	980 00	
	Contingencies		191 39	1,171 39
	<i>Charlottetown.</i>			
Reddin, Jas.	Salary as Inspector for the year	24 00	1,176 00	
Hughes, H.	do Assistant Inspector for the year.	12 00	588 00	
	Salaries	36 00	1,764 00	
	Contingencies		239 58	2,003 58

APPENDIX B.—No. 7.—Details of Weights and Measures Expenditure—*Con.*

To whom paid.	Services.	Deduction for Superannuation.	Amounts paid.	Totals.
<i>Winnipeg.</i>				
		\$ cts.	\$ cts.	\$ cts.
Huggard, R. T.	Salary as Inspector for the year.	24 00	1,176 00	
Cowley, W.	do Assistant Inspector for the year.	16 04	783 96	
Costello, J. W.	do do do	13 96	636 04	
Ross, H. E.	do do do	12 00	588 00	
Patterson, A. C.	do do 1st July to 30th Sept.	3 00	147 00	
Russell, W. W.	do do for the year.	6 73	532 55	
Looby, John.	do do do	6 32	493 68	
Girdlestone, R. J. M.	do do do	4 04	195 96	
	Salaries.	86 09	4,603 19	
	Contingencies.		712 38	
				5,315 57
<i>Victoria.</i>				
Finlay, H.	Salary as Inspector for the year.	16 04	783 96	
Leighton, W. K.	do Assistant Inspector for the year.	7 04	342 96	
	Salaries.	23 08	1,126 92	
	Contingencies.		778 77	
				1,905 69
Vincent, J. L.	District Inspector—Contingencies.			1 50
Buake, T.	do do			32 32
Barrett, J. K.	do do			358 35
<i>General.</i>				
Johnstone, W. J.	Salary as Chief Inspector of Standards for the year.	40 00	1,960 00	
	Contingencies.		329 05	
				2,289 05
<i>Inspector of Scale Factories.</i>				
Magness, R.	Salary for the year.	15 00	735 00	
	Contingencies.		573 11	
				1,308 11
<i>General Contingencies.</i>				
Burgess, Thos.	Services as mechanical assistant for May and June, 1893.	133 40		
do	Services as mechanical assistant for year ended 30th June, 1894.	800 00		
			933 40	
Sixsmith, Miss B.	Services from June 22nd, 1893, to 30th Nov., 1893.		173 31	
Kennedy, Wm.	Services for 13 days, from 4th to 18th November, 1893, cleaning weights.		16 25	
Brownlow, W. H.	Services 10 days in November, month of December, and 19 days Jan., 1st to 22nd, cleaning weights, &c.		68 75	
Thompson, J. A.	Services 2½ days with team and five men, storing standards.		28 00	
McCullough, A.	Petty expenses, freight, cartage, &c.		17 35	
Cole's National Manfg. Co.	1 bell tent, complete, for officer of W. & M., in Quebec		16 80	
May, Geo. & Sons.	2 rubber sheets.		2 20	
Garland, J. M.	2 woolen blankets for officer in Quebec District.		3 90	
Higman, O.	Travelling expenses, &c., to Chicago.		200 00	
Lyman, Sons & Co.	For 50 feet rubber tubing.		4 75	
Pritchard & Andrews.	Stamps, punches, cement, &c.		203 58	
Meredith, T. G.	Professional services <i>in re</i> Regina vs. Goldbery.		10 00	
Diamond, W. J.	do Regina vs. J. Latta.		30 00	

Inland Revenues—Excise.

APPENDIX B.—No. 7.—Details of Weights and Measures Expenditure—*Con.*

To whom paid.	Services.	Amounts paid.	Totals.
		\$ cts.	\$ cts.
Diamond, W. J.	Professional services <i>in re</i> Regina vs. Parks (4 cases and Regina vs. Kirby) ..	80 00	
Walsh, M.	do Regina vs. Rennick	6 50	
McLeod, Neil.	do advice given Mr. Inspector Reddin	8 00	
Fyfe, James.	To report on combination automatic scale presented by Mr. Menard of Chicago	15 00	
Borbridge, S. & H.	12 leather cases for books.	30 00	
Burrow, Stewart & Milne	2 special testing scales	100 00	
Birkett, Thomas.	Hardware	0 52	
Bailey, George.	Repairs, fixings, &c., for kits.	64 71	
		2,013 02	
	LESS—Received from sale of grain weights.	7 00	
	Total General Contingencies.		2,006 02
	Grand Total.		71,043 96
	ADD—Printing	451 10	
	Stationery	551 43	
	Lithographing	187 00	
			1,189 53
	Authorized disbursements (less superannuation)		72,233 49
	ADD—Balances due by sundry persons, 30th June, 1894	193 26	
	Balances due to sundry persons, 1st July, 1893.	57 50	
			250 76
	LESS—Balances due by sundry persons, 1st July, 1893.		72,484 25
			301 36
	Actual disbursements agreeing with Statements Nos. 21A and 21B, pages 42 and 43.		72,182 89

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

E. MIALL,
Commissioner.

APPENDIX B—Continued.

No. 8.—DETAILS of Gas Inspection Expenditure, for the Year ended 30th June, 1894.

To whom paid.	Services.	Deduction for Superannuation.	Amounts paid.	Totals.
		\$ cts.	\$ cts.	\$ cts.
	<i>Barrie.</i>			
Sbanacy, M.	Salary as Inspector for the year.....	2 00	98 00	
	Contingencies.....		4 55	102 55
	<i>Belleville.</i>			
Johnson, Wm.	Salary as Inspector for the year.....	5 00	245 00	
	Contingencies.....		92 48	337 48
	<i>Berlin.</i>			
Lynes, K.	Salary as Inspector for the year.....	2 00	98 00	
	Contingencies.....		10 80	108 80
	<i>Brockville.</i>			
Giffin, W. W.	Salary as Inspector for the year.....	2 00	98 00	
	Contingencies.....		28 43	126 43
	<i>Cobourg.</i>			
Bickle, J. W.	Salary as Inspector for the year.....	2 00	98 00	
	Contingencies.....		72 80	170 80
	<i>Cornwall.</i>			
Mulhern, M. M.	Salary as Inspector for the year.....	2 00	98 00	
	Contingencies.....		75 68	173 68
	<i>Guelph.</i>			
Broadfoot, S.	Salary as Inspector for the year.....	2 00	98 00	
	Contingencies.....		12 40	110 40
	<i>Hamilton.</i>			
McPhie, D.	Salary as Inspector for the year.....	24 00	1,176 00	
Dennis, W. A.	do Assistant Inspector for the year.....	1 96	9 04	
	Salaries.....	25 96	1,274 04	
	Contingencies.....		194 69	1,468 73
	<i>Kingston.</i>			
Burrows, Wm.	Salary as Inspector for the year.....	8 00	392 00	
	Contingencies.....		108 25	500 25
	<i>Listowel.</i>			
Hawkins, A. St. Geo.	Salary as Inspector for the year.....	1 25	98 75	
	Contingencies.....		60 55	159 30
	<i>London.</i>			
Williams, J.	Salary as Inspector for the year.....	20 00	980 00	
	Contingencies.....		411 85	1,391 85

Inland Revenues—Excise.

APPENDIX B.—No. 8—Details of Gas Expenditure, &c.—Continued.

To whom paid.	Services.	Deduction for Superannuation.	Amounts paid.	Totals.
	<i>Napanee.</i>	\$ cts.	\$ cts.	\$ cts.
Elliott, Geo. M.	Salary as Inspector for the year	2 00	98 00	
	Contingencies		6 00	104 00
	<i>Ottawa.</i>			
Roche, H. G.	Salary as Inspector for the year	18 00	882 00	
	Contingencies		312 55	1,194 55
	<i>Owen Sound.</i>			
Graham, W. J.	Salary as Inspector for the year	4 00	196 00	
	Contingencies		125 00	321 00
	<i>Peterborough.</i>			
Cahill, Thomas	Salary as Inspector for the year	4 00	196 00	
	Contingencies		39 70	235 70
	<i>Sarnia.</i>			
Hicks, W. H.	Contingencies			26 55
	<i>Stratford.</i>			
Rennie, Geo.	Salary as Inspector for the year	2 00		98 00
	<i>Toronto.</i>			
Johnstone, J. K.	Salary as Inspector for the year	28 04	1,371 96	
Pape, James.	do Assistant Inspector for the year	6 99	799 92	
	Salaries	35 03	2,171 88	
	Contingencies		45 95	2,217 83
	<i>Montreal.</i>			
Aubin, A.	Salary as Inspector for the year	28 04	1,371 96	
O'Flaherty, M. J.	do Assistant Inspector for the year	28 04	771 96	
	Salaries	56 08	2,143 92	
	Contingencies		297 73	2,441 65
	<i>Quebec.</i>			
LeVasseur, N.	Salary as Inspector for the year	19 96	980 04	
Moreau, A.	do Caretaker do	6 00	294 00	
	Salaries	25 96	1,274 04	
	Contingencies		236 46	1,510 50
	<i>Sherbrooke.</i>			
Simpson, A. F.	Salary as Inspector for the year	2 00		98 00
	<i>Fredericton.</i>			
Purdie, S. A.	Salary as Inspector for the year	2 50		197 50

APPENDIX B.—No. 8.—Details of Gas Expenditure, &c.—Continued.

To whom paid.	Services.	Deduction for Superannuation.	Amounts paid.	Totals.
		\$ cts.	\$ cts.	\$ cts.
	<i>Moncton.</i>			
Lawlor, R. A.	Salary as Inspector for the year	6 00	294 00	
	Contingencies		89 52	383 52
	<i>St. John.</i>			
Rowan, A.	Salary as Inspector for the year	20 00	980 00	
	Contingencies		74 98	1,054 98
	<i>Halifax.</i>			
Miller, A.	Salary as Inspector for the year	24 00	1,176 00	
Munro, H. D.	do Asst. do do	1 96	98 04	
	Salaries	25 96	1,274 04	
	Contingencies		877 06	2,151 10
	<i>Charlottetown.</i>			
Knight, Jos.	Salary as Inspector for the year	2 50	197 50	
	Contingencies		27 00	224 50
	<i>Winnipeg.</i>			
Huggard, R. T.	Salary as Inspector for the year	4 00	196 00	
	Contingencies		165 16	361 16
	<i>Nanaimo.</i>			
Good, H. L.	Salary as Inspector, 1st Dec. to 30th June ...	1 12	57 19	
	Contingencies		230 74	287 93
	<i>New Westminster.</i>			
Wolfenden, Wm ...	Salary as Inspector, 1st Dec. to 30th June ...	1 12	57 19	
	Contingencies		392 52	449 71
	<i>Vancouver.</i>			
Miller, J. E.	Salary as Inspector, 1st Dec., to 30th June.	1 12	57 19	
	Contingencies		392 16	449 35
	<i>Victoria.</i>			
Jones, R.	Salary as Inspector for the year	4 00	196 00	
	Contingencies		441 83	637 83
Gill, Wm.	Contingencies as District Inspector			43 50
	<i>General.</i>			
McPhie, D.	Travelling and other expenses in connection with equipment of various offices			1,313 01

Inland Revenues—Excise.

APPENDIX B.—No. 8.—Details of Gas Expenditure, &c.—*Concluded.*

To whom paid.	Services.	Amounts paid.	Totals.
	<i>General Contingencies.</i>	\$ cts.	\$ cts.
Lyman Sons & Co.	Two Dessic cylinders, and rubber tubing	75 75	
Don'on Express Co.	Charges on box from Victoria, B.C.	28 65	
McPhie, D.	Freight on meter prover and test meter from Victoria. .	32 04	
do	Equipment of sundry gas offices.	241 05	
Canad'n Express Co	Freight on goods from Oertling	19 59	
Wright, W. J.	Professional services <i>in re</i> Regina vs. White	5 00	
Hall, Hon. J. S.	do Regina vs. sureties of Wm. Hart	51 50	
Pritchard & Andrews	Year's dies, refit meter seals, and cement, &c.	15 40	
Oertling, L.	Condensers, sperm candles, &c.	130 58	
Canad'n Rubber Co	50 feet 5-inch tubing.	7 50	
	Total General Contingencies		607 06
	Grand Total		21,059 20
	ADD—Printing	326 88	
	Stationery	99 63	426 51
	Authorized disbursements (less superannuation)		21,485 71
	ADD—Balances due by Inspector, 30th June, 1894. .	212 88	
	do to do 1st July, 1893 ..	08	212 96
	LESS—Balances due by Inspector, 1st July, 1893 ..		21,698 67
	Actual disbursements, agreeing with Statement No. 22, page 45.		360 47
			21,338 20

E. MIALL,
Commissioner.

INLAND REVENUE DEPARTMENT,
OTTAWA, 20th September, 1894.

APPENDIX B.

No. 9.—LIST of Persons employed by the Inland Revenue Department on Salary, during the Year ended 30th June, 1894.

NAMES.	SERVICES.						
	Inside.	Excise.	Cullers' Office.	Weights and Measures.	Gas.	Preventive.	Food Inspection.
Adams, J. S.		1					
Alexander, Thos.		1					
Allen, G. A.		1					
Allison, Chas.				1			
Amor, Wm		1					
Armstrong, Walter.		1					
Atherton, R.		1					
Aubin, A.					1		
Babington, F. W.							1
Baby, J. C.		1					
Baby, Jos.		1					
Baby, W. A. D.		1					
Baker, J. S.				1			
Barber, J. S.		1					
Barker, C.		1					
Barrett, J. K.		1					
Battle, M.		1					
Bayard, Gilbert A.		1					
Beasley, R.		1					
Beattie, Thos.				1			
Beauchamp, J. P.		1					
Bell, James E.		1					
Belle-Rives, Geo.			1				
Belyea, T. H.		1					
Bennett, Jas.		1					
Bickle, J. W.		1			1		
Bish, Philip.		1					
Blair, J. B.		1					
Blatch, F. K.	1						
Blethen, C. W.		1					
Blundell, Richard		1					
Bois, G. A.				1			
Boivin, C. A.		1					
Bolster, G. I.				1			
Boomer, J. B.		1					
Borradaile, R.		1					
Boucher, O. N. E.		1					
Bourassa, Joseph.		1					
Bourassa, P. E.				1			
Bourget, O.		1					
Bouteiller, G. A.		1					
Bowman, Allan		1					
Boyd, S. J.		1					
Boyle, P.		1					
Brabant, J. B. G. N.		1					
Bradley, Miss Carrie		1					
Brennan, D. J.		1					
Brennan, John.		1					
Broadfoot, S.		1					
Brown, J. J.		1					
Brown, S.	1	1					
Brunel, G.							
Bulmer, Wm		1					
Burgess, Thomas.				1			
Burke, T.		1					
Burns, John.	1						
Burrows, Wm.					1		

Inland Revenues—Excise.

APPENDIX B.—No. 9.—List of Persons employed by the Inland Revenue Department, &c.—Continued.

NAMES.	SERVICES.						
	Inside.	Excise.	Cullers' Office.	Weights and Measures.	Gas.	Preventive.	Food Inspection.
Byrnes, John	1						
Cahill, J. H.		1					
Cahill, J. W.		1					
Cahill, T.		1			1		
Cameron, D. M.	1						
Campeau, F. R. E.		1					
Carroll, D.	1						
Carter, Wm.		1					
Caven, A.		1					
Caven, W.							
Chabot, F. X.				1			
Chalut, J. O.				1			
Chisholm, J. J.		1					
Chisholm, Noble.		1					
Christie, W. J.		1					
Clark, A. F.		1					
Clark, James Alfred.		1					
Codd, Herbert J. S.		1					1
Code, A.		1			1		
Code, Abraham.		1					
Colclough, J. W.		1					
Coleman, Chas.		1					
Coleman, J. J.		1					
Coles, F. H.		1					
Conway, B. J.					1		
Cosgrove, John.				1			
Costello, J. W.		1					
Costigan, H. A.		1					
Costigan, J. J.							1
Coughlin, D.					1		
Courtney, J. J.		1					
Cowan, Edgar.					1		
Cowley, W.		1					
Crawford, W. P.		1					
Crotty, John.		1					
Crowe, W.		1					
Cullen, P.						1	
Curless, C.				1			
Daoust, J. A.							
Daveluy, George.		1					
Daveluy, J. P.		1					
Davis, James.		1					
Davis, John.		1					
Davis, T. G.		1					
Dawson, W.							
DeMartigny, C. P.			1				
Dennis, W. A.		1			1		
Desroches, David.		1					
Devine, Felix M.		1					
Dibbles, Wm.		1					
Dick, J. W.		1					
Dickson, C. T.		1					
Dixon, H. G. S.		1					
Dingman, N. J.		1					
Dodds, E. W.		1					
Donaghy, Wm.					1		
Dorion, G. T.		1					
Doyle, J. E. H.							
Doyon, J. A.	1						
Dowling, Thomas.		1					

APPENDIX B.—No. 9.—List of Persons employed by the Inland Revenue Department, &c.—Continued.

NAMES.	SERVICES.						
	Inside.	Excise.	Cullers' Office.	Weights and Measures.	Gas.	Preventive.	Food Inspection.
Dudley, W. H.		1					
Dunne, J. P.	1						
Dumbrille, J.		1					
Dumbrille, R. W.		1					
Dumouchel, Léandre.		1					
Dunlop, C.		1					
Duplessis, C. Z.		1					
Dustan, W. M.		1					
Earle, R. H.		1					
Egan, James.				1			
Egener, A.		1					
Elliott, G. M.					1		
Elliott, T. H.				1			
Erb, A. A.		1					
Evans, G. T.		1					
Fahay, Ed.		1					
Fahay, Owen		1					
Falconer, Jas.		1					
Ferguson, J.		1					
Ferguson, John C.		1					1
Findley, Hugh.				1			
Fiset, Arthur		1					
Fitzgerald, E. W.				1			
Fitzpatrick, W. J.		1					
Flynn, D.		1					
Flynn, J. P.		1					
Forest, E. R.		1					
Fortier, J. J. O.		1					
Foster, Henry.		1					
Fowler, Geo.	1						
Fox, J. D.		1					
Fox, Thomas		1					
Fraser, G. J.		1					
Fraser, P.		1					
Gallagher, F.			1				
Gatien, F.		1					
Gerald, C.		1					
Gerald, W. H.		1					
Gerald, W. J.	1						
Gervais, Samuel				1			
Giffin, W. W.				1	1		
Gill, Wm.		1					
Girard, Irène		1					
Girdlestone, R. J. M.		1		1			
Godson, H.		1					
Goodman, A. W.		1					
Gorman, Arthur.		1					
Gorman, M.				1			
Gosnell, T. S.		1					
Gouin, N.			1				
Gow, James.		1					
Gow, J. E.		1					
Gowen, Edmund.			1				
Graham, W. J.		1			1		
Graham, W. T.		1					
Grant, H. H.		1					
Grimason, Thomas		1					
Guay, Alphonse.					1		
Hagerty, P.		1					
Hall, C. R.	1						

Inland Revenues—Excise.

APPENDIX B.—No. 9.—List of Persons employed by the Inland Revenue Department, &c.—Continued.

NAMES.	SERVICES.						
	Inside.	Excise.	Cullers' Office.	Weights and Measures.	Gas.	Preventive.	Food Inspection.
Hall, J. J.		1					
Hamilton, W. L.		1					
Hanley, A.		1					
Harney, Thomas			1				
Hart, P. D.		1					
Harvey, E. A.		1					
Harwood, R. U.		1					
Hastie, Wm.		1					
Hasty, M. J.		1					
Hawkins, A. C.		1					
Hawkins, A. St. George					1		
Hawkins, W. L.		1					
Hayward, W. J.				1			
Hébert, C. D.		1					
Hébert, J. A. P.				1			
Helliwell, H. N.		1					
Henderson, W.		1					
Henry, J. M. B.		1					
Henwood, Geo.	1						
Heron, W. L.		1					
Hesson, C. A.		1					
Hicks, W. H.		1					
Hill, A. M.		1					
Hinsworth, Wm.	1						
Hobbs, G. N.		1					
Howard, W. S.		1					
Howden, R.		1					
Howie, A.		1					
Hubley, H. H.		1					
Hudon, A.		1					
Huggard, R. T.				1	1		
Hughes, R. A.				1			
Hurst, Levi B.		1					
Iler, B.		1					
Ironside, G. A.		1					
Irwin, Robert		1					
Irwin, Samuel				1			
James, T. C.		1					
Jamieson, E. C.		1					
Johnson, G. E.		1					
Johnson, J. J.		1					
Johnson, Wm.				1	1		
Johnstone, J. K.				1	1		
Johnstone, W. J.		1					
Jones, Andrew				1			
Jones, Richard		1					
Jubenville, J. P.		1					
Keeler, G. S.		1					
Keilty, Thos.				1			1
Kelly, Edward				1			
Kelly, John F.				1		1	
Kelly, M. J.				1			
Kenning, J. H.		1					
Keogh, P. M.		1					
Kidd, Thomas						1	1
King, R. M.		1					
Knight, Jos.					1		
Knowlson, J. B.		1					
Laidman, Richard H.				1			
Lane, T. M.		1					

APPENDIX B.—No. 9.—List of Persons employed by the Inland Revenue Department, &c.—Continued.

NAMES.	SERVICES.						
	Inside.	Excise.	Cullers' Office.	Weights and Measures.	Gas.	Preventive.	Food Inspection.
Laporte, Geo		1					
LaRivière, A. C.		1					
LaRue, Geo.		1					
Lauder, John		1					
Lavallé, D. P.		1					
Lawlor, H.		1					
Lawlor, R. A.		1			1		
Lecours, H. T.		1					
Lee, Edward		1					
Leighton, W. K.				1			
LeMoine, Jules		1					
LeMoine, J. M.		1					
Lépine, Louis		1					
Leprohon, R. M.		1					
Lett, F. P. A.		1					
LeVasseur, N.					1		
Logan, John		1					
Looby, John				1			
Lynch, P.				1			
Lynes, K.		1			1		
Lyons, E.		1					
Lyons, John				1			
Macdonald, A. B.		1					
Macdonald, D.		1					
Macdonald, J. A.				1			
Macfarlane, Thos							1
Mackay, G. W.		1					
Mackay, J. H.		1					
Malo, T.		1					
Magness, Robert				1			
Mainville, C. P.		1					
Malone, Thomas			1				
Manning, J.		1					
Marcon, F. E.		1					
Marentette, Alex				1			
Marion, Eugène		1					
Marshall, F.		1					
Mason, F.		1					
Metcalf, W. F.		1					
Miall, E.	1						
Miller, A.					1		
Miller, J. E.		1					
Miller, W. F.		1					
Millier, Elie		1					
Milligan, R. J.				1			
Milliken, E.		1					
Mongeon, Cyrille				1			
Monteith, J. A.		1					
Moore, T.		1					
Moore, Wm.		1					
Moreau, Alf.				1	1		
Morrow, John		1					
Mulhern, M. M.		1			1		
Munro, H. D.		1			1		
Murray, A. E.		1					
Murray, David		1					
McAllister, A.		1					
McCarthy, J. P.	1						
McClanaghan, M.		1					
McCloskey, J. R.		1					

Inland Revenues—Excise.

APPENDIX B.—No. 9.—List of Persons employed by the Inland Revenue Department, &c.—Continued.

NAMES.	SERVICES.						
	Inside.	Excise.	Cullers' Office.	Weights and Measures.	Gas.	Preventive.	Food Inspection.
McCoy, Wm.....		1					
McCuaig, Aug. F.....		1					
McCullough, A.....	1						
McDonald, J.....				1			
McDonald, J. A.....		1					
McDonald, M. A.....		1					
McFarlane, C. D.....		1					
McGill, A.....							1
McIntyre, Donald.....		1					
McKay, John.....				1			
McKinnn, U. H.....		1					
McPherson, A. F.....		1					
McPhie, Donald.....					1		
McSween, James.....		1					
Nash, S. C.....	1						
Nettle, R.....	1						
Newby, F.....							
Nichols, J. T.....		1					
Olivier, J. A.....				1			
O'Brien, C.....		1					
O'Brien, J. F.....		1					
O'Donnell, J.....		1					
O'Donohue, M. J.....							
O'Flaherty, M. J.....		1			1		
O'Leary, T. J.....		1					
Panneton, G. E.....		1					
Pape, James.....					1		
Patton, James.....			1				
Perkins, L. A.....		1					
Perry, G. L.....		1					
Petit, J. B.....				1			
Pinhey, Henry.....				1			
Pinsonnault, Alfred.....		1					
Piper, H.....				1			
Plessis (<i>dit</i> Belair), A.....		1					
Pole, C. W.....		1					
Powell, J. B.....		1					
Power, R.....							
Power, Thomas A.....		1					
Provost, J. J.....							
Purdie, S. A.....					1		
Quain, Redmond.....							
Quinn, J. D.....		1					
Ranon, Pierre.....		1					
Reddan, C. J.....		1					
Reddin, James.....				1			
Reilly, John S.....		1					
Rennie, George.....					1		
Richard, D.....				1			
Richard, J. U.....				1			
Robins, Paul M.....	1						
Roche, H. G.....					1		
Rogerson, J. M.....		1					
Ross, H. E.....				1			
Ross, S. F.....		1					
Rouleau, J.....							
Rowan, A.....					1		
Rowland, E.....		1					
Rowland, F.....		1					
Russell, W. W.....				1			

APPENDIX B.—No. 9.—List of Persons employed by the Inland Revenue Department, &c.—*Concluded.*

NAMES.	SERVICES.						
	Inside.	Excise.	Cullers' Office.	Weights and Measures.	Gas.	Preventive.	Food Inspection.
Ryan, J. B.				1			
Ryan, Wm.		1					
Saucier, X.		1					
Schram, B.		1					
Scovil, W. B.				1			
Scullion, J. W.		1					
Sexton, J.		1			1		
Shanacy, M.		1					
Shaw, J. F.	1						
Simpson, A. F.		1					
Sinon, E. H.		1					
Slattery, R.		1					
Slattery, Thos.				1			
Sinyth, B. B.		1					
Spereman, J. J.		1					
Spence, F. H.		1					
Spence, John.		1					
Standish, J. G.		1					
Stewart, Jas.		1					
Stratton, W. C.		1					
Taylor, G. W.		1					
Taylor, J. F.		1					
Till, T. M.		1					
Thomas, J. S.				1			
Thomas, Philip.		1				1	
Thomas, Robert.		1					
Todd, Thomas.			1				
Tomlinson, W. H.				1			
Tompkins, P.		1					
Toupin, F. X. J. A.		1					
Tourchot, A. L.							1
Tracey, J. P.		1					
Tremaine, L. E.		1					
Valin, J. E.	1						
Verner, Francis.		1					
Villeneuve, J.		1					
Vincent, J. L.		1					
Wainright, F. G.		1					
Waller, J.		1					
Walsh, Daniel.		1					
Watkins, J. A.		1					
Watson, James.							1
Webbe, C. E. A.		1					
Weir, James.		1					
Westman, T.		1					
Weyms, C.		1					
Wheatley, Alfred E.				1			
Whelan, W. F.			1				
Whitaker, Wm.				1			
Williams, Geo.		1					
Williams, J.					1		
Wilmot, J. B.				1			
Wilson, David.		1					
Winter, A. W.		1					
Winters, C. F.	1						
Wolfenden, Wm.		1					
Woodward, G. W.		1					
Wright, Robt.				1			
Yates, J. M.		1					
Total.	23	289	11	69	31	4	10

Inland Revenues—Excise.

APPENDIX B.—Concluded.

No. 10.—List of persons employed by the Inland Revenue Department on salary, during a portion of the year ended 30th June, 1894.

NAMES.	PERIOD.	SERVICES.				
		Inside.	Excise.	Weights and Measures.	Gas.	Adultera- tion of Food.
Bishop, Allen.....	From Nov. 6, 1893 to June 30, 1894.....	1	1			
Brown, Jas. F.....	do July 1, 1893 to Feb. 28, 1894.....					
Casey, Thomas.....	do July 1, 1893 to Mar. 31, 1894.....		1			1
Caven, J. McD.....	do July 1, 1893 to Nov. 30, 1893.....		1			
Chartier, Etienne.....	do Jan. 1, 1894 to June 30, 1894.....		1			
Dillon, T.....	do July 1, 1893 to May 31, 1894.....		1	1		
Fournier, L. A.....	do June 1, 1894 to June 30, 1894.....			1		
Freed, A. T.....	do May 23, 1894 to June 30, 1894.....			1		
Freeze, E. C.....	do July 1, 1893 to Oct. 31, 1893.....			1		
George, John.....	do Mar. 14, 1893 to June 30, 1894.....		1			
Good, H. L.....	do Dec. 1, 1893 to June 30, 1894.....				1	
Lang, Victor.....	do July 1, 1893 to April 30, 1894.....		1			
Langlois dit Traversy, F. X.....	do July 1, 1893 to Sept. 30, 1893.....		1			
McKenzie, T. H.....	do July 1, 1893 to June 30, 1894.....			1		
McLean, Hector F. H.....	do Mar. 20, 1894 to June 30, 1894.....		1			
McLenaghan, N.....	do Dec. 28, 1893 to June 30, 1894.....		1			
Parkinson, Edward B.....	do Mar. 1, 1894 to June 30, 1894.....		1			
Patterson, A. C.....	do July 1, 1893 to Sept. 30, 1893.....			1		
Scullion, P. J.....	do Jan. 1, 1894 to June 30, 1894.....		1			
Wardell, R. S. R.....	do June 1, 1894 to June 30, 1894.....		1			
	Total.....	1	12	6	1	1

RECAPITULATION.

Employed during the year, as per Statement No. 9.....	437
do a portion of the year, as per Statement No. 10.....	21
Total.....	458
Deduct employed in the Excise and Weights and Measures Service.....	2
do do do Gas Service.....	9
do do do Preventive Service.....	1
do do do Food Inspection Service.....	2
do do do Weights and Measures and Gas Service.....	5
do do do do Food Inspection Service.....	2
do do do Preventive Service and Food Inspection Service.....	1
	22
Net Total.....	436

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REPORTS, RETURNS AND STATISTICS

OF THE

INLAND REVENUES

OF THE

DOMINION OF CANADA

FOR THE FISCAL YEAR ENDED 30TH JUNE

1894

PART II.

INSPECTION OF WEIGHTS AND MEASURES AND GAS

PRINTED BY ORDER OF PARLIAMENT



OTTAWA

PRINTED BY S. E. DAWSON, PRINTER TO THE QUEEN'S MOST
EXCELLENT MAJESTY

1894

Inland Revenues—Weights and Measures and Gas.

REPORT

OF THE

COMMISSIONER OF INLAND REVENUE

ON THE

INSPECTION OF WEIGHTS AND MEASURES AND GAS.

To the Honourable
The Controller of Inland Revenue.

SIR,—I have the honour to submit herewith my annual report on the inspection of weights and measures and gas, with the usual statements in connection therewith, for the fiscal year ended 30th June, 1894.

1. The total revenue collected during the year for the inspection of weights and measures was \$38,631.52, as against \$39,411.06 collected during the year ended 30th June, 1893.

5. The total expenditure was \$73,398.38, as against \$71,657.96 expended during the year ended 30th June, 1893.

3. Appendix "A" gives a summary statement of the receipts and expenditure of each inspection division.

4. In Appendices "B," "C" and "D" will be found a detailed statement of weights, measures and weighing machines presented for verification, verified and rejected during the year. The number of all descriptions may be summarily stated as follows:—

	Presented.	Verified.	Rejected.	Percentage of Rejections.
Weights, Dominion.	72,733	72,594	139	0.17
Measures of capacity, Dominion.	85,481	84,675	806	0.94
Lineal measures.	5,060	5,018	42	0.83
Balances, equal arms.	11,917	11,848	69	0.57
do steelyards.	4,443	4,405	38	0.86
do platform scales.	23,554	23,255	299	1.22
Irregular weights.	1,259	1,252	7	0.55
do measures.	148	148		

5. I have again to draw your attention to the fact that the expenditure in the Weights and Measures Branch might be considerably lessened in many of the divisions without affecting the efficiency of the service, by reducing the staff of assistant inspectors

INSPECTION OF GAS.

6. The total revenue collected during the fiscal year ended 30th June, 1894, for the inspection of gas and gas-meters, was \$16,558.94, as compared with \$13,205.91 collected during the year ended 30th June, 1893.

7. The total expenses were \$21,775.31, as against \$19,241.03 expended during the year ended 30th June, 1893.

8. Appendix "E" gives a summary statement of the receipts and expenditure of each Gas Inspection District.

9. A statement of the illuminating power and purity of gas inspected during the year will be found in Appendix "F."

10. The illuminating power, where inspection has been made, has been as follows:—

Places.	Number of Tests made.	Number of times below Standard.	Places.	Number of Tests made.	Number of times below Standard.
Barrie	11	.....	Stratford	12	.....
Belleville	17	.....	St. Catharines	11	.....
Berlin	12	1	St. Thomas	12	.....
Brantford	11	.....	Toronto	105	.....
Brockville	12	.....	Windsor	12	.....
Chatham	12	.....	Woodstock	12	.....
Cobourg	12	.....	Montreal	106	.....
Cornwall	12	.....	Quebec	12	.....
Dundas	11	.....	Sherbrooke	12	.....
Galt	12	.....	Chatham, N.B.	16	1
Guelph	12	.....	Fredericton	12	.....
Hamilton	12	.....	Moncton	9	.....
Ingersoll	12	.....	St. John, N.B.	82	.....
Kingston	39	.....	Halifax	24	.....
Lindsay	12	.....	Pictou	12	.....
Listowell	12	.....	Yarmouth	12	.....
London	35	.....	Charlottetown	35	.....
Napanee	12	6	Winnipeg	12	.....
Ottawa	24	.....	Nanaimo	5	.....
Owen Sound	12	.....	New Westminster	6	.....
Peterborough	12	.....	Vancouver	6	.....
Port Hope	12	.....	Victoria	25	.....
Sarnia	10	.....		

TESTS FOR PURITY.

11. Gas has been tested for sulphur and ammonia at Ottawa, Toronto, Montreal, Quebec, St. John and Halifax.

12. In Ottawa total number of tests made was
 For sulphur 24 tests, never in excess.
 For ammonia, 24 tests, twice in excess.
 For sulphuretted hydrogen, 24 tests, never present.

13. In Toronto:—

For sulphur, 24 tests, never in excess.
 For ammonia, 24 tests, never in excess.
 For sulphuretted hydrogen, 105 tests, never present.

Inland Revenues—Weights and Measures and Gas.

14. In Montreal :—

For sulphur, 24 tests, never in excess.
 For ammonia, 24 tests, never in excess.
 For sulphuretted hydrogen, 145 tests, never present.

15. In Quebec :—

For sulphur, 24 tests, never in excess.
 For ammonia, 24 tests, never in excess.
 For sulphuretted hydrogen, 24 tests, never present.

16. In St. John, N.B. :—

For sulphur, 40 tests, never in excess.
 For ammonia, 39 tests, once in excess.
 For sulphuretted hydrogen, 86 tests, never present.

17. In Halifax :—

For sulphur, 24 tests, never in excess.
 For ammonia, 24 tests, never in excess.
 For sulphuretted hydrogen, 24 tests, never present.

18. In addition to the foregoing, tests for sulphuretted hydrogen have been made at each of the following places where illumination power has been tested with the following results :—

Places.	Number of Tests.	Present.	Places.	Number of Tests.	Present.
Barrie.....	11	.....	Port Hope.....	19	.....
Belleville.....	17	.....	Sarnia.....	10	.....
Berlin.....	12	.....	Stratford.....	12	.....
Brantford.....	11	.....	St. Catharines.....	11	.....
Brockville.....	12	.....	St. Thomas.....	12	.....
Chatham.....	12	.....	Windsor.....	12	.....
Cobourg.....	19	.....	Woodstock.....	12	.....
Cornwall.....	12	.....	Sherbrooke.....	12	.....
Dundas.....	11	.....	Chatham, N.B.....	16	.....
Galt.....	12	.....	Fredericton.....	12	.....
Guelph.....	12	.....	Moncton.....	9	.....
Hamilton.....	12	.....	Pictou.....	12	.....
Ingersoll.....	12	.....	Yarmouth.....	12	.....
Kingston.....	36	.....	Charlottetown.....	35	.....
Lindsay.....	12	.....	Winnipeg.....	12	.....
Listowel.....	12	.....	Nanaimo.....	5	.....
London.....	35	.....	New Westminster.....	6	.....
Napanee.....	12	1	Vancouver.....	6	.....
Owen Sound.....	12	.....	Victoria, B.C.....	25	.....
Peterborough.....	12	.....		

19. The details of gas-meter inspection will be found in Appendix "G." The result, as compared with last year, may be stated as follows :—

	Presented for Verification.	Rejected.
1892-93.....	10,194	165
1893-94.....	12,833	180

20. I have pleasure in calling your attention to the fact that the revenue for gas inspection for the year ended 30th June, 1894, is \$7,865.15 greater than the receipts of any previous year, excepting the year ended 30th June, 1893, and I have no doubt but that before long the revenue can be made to balance the expenditure, and that, too, without grievously over-burdening gas-producers.

EDWD. MIALL,

Commissioner Inland Revenue.

OTTAWA, 5th November, 1894.

Inland Revenues—Weights and Measures and Gas.

APPENDIX A.

STATEMENT of Weights and Measures' Receipts and Expenditure, for the Year ended 30th June, 1894.

Inspection Divisions.	Inspectors and Assistants.	EXPENDITURE.							Receipts.
		Salaries.	Seizure Expenses.	Special Assistance	Rent.	Travelling Expenses.	Sundries.	Totals.	
<i>Province of Ontario.</i>		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Belleville...	Johnson, Wm... Slattery, Thos... Irwin, S.....	2,333 29	25 70	.....	75 00	313 54	172 36	2,919 89	1,221 51
Hamilton ..	McKenzie, T. H. Freed, A. T.... McDonald, John Marentette, A... Laidman, R. H.. Beattie, John... Fitzgerald, E. W. Wheatley, A. E.)	5,711 42	.....	.....	.....	338 11	195 34	6,244 87	7,274 72
Kingston...	Macdonald, J. A.) Whitaker, W. W.) Griffin, W. W...)	2,400 00	.....	.....	135 00	393 29	235 41	3,163 70	1,381 79
London	Egan, Jas..... Coughlin, D... Thomas, J. S...)	2,700 00	5 25	.....	.....	562 35	125 94	3,393 54	2,922 89
Orillia ...	Bolster, Geo. I... Lyons, John.... Elliott, T. H....)	2,300 00	.....	.....	.....	597 25	45 75	2,943 00	957 87
Ottawa.....	Code, A..... Coogrove, John... Gorman, M..... Lynch, P.....)	3,000 00	2 40	.....	349 99	711 90	137 60	4,201 89	1,768 32
Toronto	Piper, H..... Milligan, R. J... Wright, R. J... Todd, Thos.....)	3,400 00	.....	.....	.....	718 43	93 34	4,211 77	3,807 28
Windsor ...	Haywood, W. J.) Hughes, R. A...)	1,800 00	.....	.....	.....	578 73	51 77	2,430 50	1,731 08
Totals.....		23,644 71	33 35	.....	559 99	4,213 60	1,057 51	29,509 16	21,065 46

APPENDIX A—Continued.

STATEMENT of Weights and Measures' Receipts and Expenditure, &c.—Continued.

Inspection Divisions.	Inspectors and Assistants.	EXPENDITURE.							Receipts.
		Salaries.	Seizure Expenses.	Special Assistance	Rent.	Travelling Expenses.	Sundries.	Totals.	
<i>Province of Quebec</i>		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Montreal	Chalut, J. O. Daoust, J. A. Dorion, G. T. Gervais, S. Dillon, S. Richard, J. U. Baker, J. S. Hébert, J. A. P. Tomlinson, W. M. Fournier, L. A.	7,097 20				761 11	275 07	8,133 38	8,552 41
Quebec	Bourassa, P. E. Kelley, M. J. Pinhey, H. Chabot, F. X. Petit, J. B. Guay, A. Moreau, A.	4,549 93	3 85		150 00	1,172 96	57 03	5,933 77	2,597 93
Three Rivers	Olivier, J. A. Provost, J. J. Mongeon, C.	2,199 96				208 32	32 86	2,441 14	1,203 53
	District Inspector.					1 50		1 50	
	Totals	13,847 09	3 85		150 00	2,143 89	364 96	16,509 79	12,353 87
<i>Province of New Brunswick.</i>									
Fredericton	Freeze, E. C. Bois, Geo.	733 32				25 75	6 91	765 98	113 88
King's	Scovil, W. B. Richard, D.	1,400 00				273 50	19 53	1,693 03	654 26
St. John	Wilnot, J. B. Cowan, E. Bois, Geo.	2,000 00				132 88	9 49	2,142 37	782 60
	District Inspector.					31 85	0 47	32 32	
	Totals	4,133 32				463 98	36 40	4,633 70	1,550 74
<i>Province of Nova Scotia.</i>									
Cape Breton	Tremaine, L. E. Ryan, J. B.	800 00				167 23	35 62	1,002 85	296 05
Halifax	Kelly, E.	1,600 00			375 00	224 97	126 28	2,326 25	956 76
Pictou	McKay, J. Chisholm, J. J.	1,500 00				118 67	30 50	1,649 17	510 85
Yarmouth	Allison, C.	1,000 00				169 72	21 67	1,191 39	259 02
	Totals	4,900 00			375 00	680 59	214 07	6,169 66	2,022 68

Inland Revenues—Weights and Measures and Gas.

APPENDIX A—Concluded.

STATEMENT of Weights and Measures' Receipts and Expenditure, &c.—Concluded.

Inspection Divisions.	Inspectors and Assistants.	EXPENDITURE.							Receipts.
		Salaries.	Seizure Expenses.	Special Assistance	Rent.	Travelling Expenses.	Sundries.	Totals.	
<i>Province of P. E. Island.</i>		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Charlotte town..	Reddin, Jas. Hughes, Henry. }	1,800 00	.....	.....	.....	194 95	44 63	2,039 58	387 35
<i>Province of Manitoba.</i>									
Winnipeg...	Huggard, R. T. Cowley, W. Costello, J. W. Ross, H. E. Paterson, A. C. Russell, W. W. Looby, John.	4,689 28	.....	346 72	135 00	165 75	64 91	5,401 66	773 27
	District Inspector.	.....	.....	.....	.....	358 35	.....	358 35	.....
	Totals.....	4,689 28	.....	346 72	135 00	524 10	64 91	5,760 01	773 27
<i>Province of British Columbia.</i>									
Victoria....	Findley, Hugh. Leighton, W. K. }	1,150 00	.....	.....	300 00	394 20	84 57	1,928 77	478 15
<i>General.</i>									
Ch. Insp. of Standards.	Johnstone, W. J. . . .	2,000 00	.....	.....	.....	259 80	69 25	2,329 05	
Insp. of Scale Factories.	Magness, R.	750 00	.....	.....	.....	570 97	2 14	1,323 11	
Contingencies		.....	.....	.....	.....	.....	2,006 02	2,006 02	
Printing		.....	.....	.....	.....	.....	451 10	451 10	
Lithographing		.....	.....	.....	.....	.....	187 00	187 00	
Stationery		.....	.....	.....	.....	.....	551 43	551 43	
	Totals.....	2,750 00	.....	.....	.....	830 77	3,266 94	6,847 71	

RECAPITULATION.

Ontario.....	23,644 71	33 35	.....	559 99	4,213 60	1,057 51	29,509 16	21,065 46
Quebec.....	13,847 09	3 85	.....	150 00	2,143 89	364 96	16,509 79	12,353 87
New Brunswick.	4,133 32	.....	.....	.....	463 98	36 40	4,633 79	1,550 74
Nova Scotia.	4,900 00	.....	.....	375 00	680 59	214 07	6,169 66	2,022 68
Prince Edward Island.	1,800 00	.....	.....	.....	194 95	44 63	2,039 58	387 35
Manitoba.	4,689 28	.....	346 72	135 00	524 10	64 91	5,760 01	773 27
British Columbia.	1,150 00	.....	.....	300 00	394 20	84 57	1,928 77	478 15
General.....	2,750 00	.....	.....	.....	830 77	3,266 94	6,847 71	
Grand Totals	56,914 40	37 20	346 72	1,519 99	9,446 08	5,133 99	73,398 38	38,631 52

APPENDIX

RETURN of the Weights and Measures Inspected during the Fiscal Year ended 30th
for each Division, for each Province,

INSPECTION DIVISIONS.	WEIGHTS.									MEASURES OF		
	Dominion.			Troy.		Miscellaneous.			Dominion.			
	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.	
<i>Ontario.</i>												
Belleville	1,295	1,295				1	1		930	930		
Hamilton	12,939	12,936	3	39	39	3	3		5,479	5,450	29	
Kingston	1,385	1,310	75			4	3	1	10,739	9,999	740	
London	3,748	3,747	1			2	2		10,229	10,229		
Orillia	1,305	1,305							1,148	1,147	1	
Ottawa	2,773	2,770	3			19	19		2,765	2,764	1	
Toronto	5,059	5,059		4	4	15	15		11,650	11,650		
Windsor	3,140	3,137	3						1,754	1,753	1	
Totals.....	31,644	31,559	85	43	43	44	43	1	44,694	43,922	772	
<i>Quebec.</i>												
Montreal.....	20,645	20,635	10	32	32	88	88		20,638	20,628	10	
Quebec.....	8,018	7,986	32			863	859	4	6,073	6,070	3	
Three Rivers.....	3,656	3,656				5	5		3,613	3,601	12	
Totals.....	32,319	32,277	42	32	32	956	952	4	30,324	30,299	25	
<i>New Brunswick.</i>												
Fredericton	231	231							266	266		
King's	1,106	1,106				39	39		1,268	1,266	2	
St. John	2,218	2,218				6	6		3,330	3,330		
Totals.....	3,555	3,555				45	45		4,864	4,862	2	
<i>Nova Scotia.</i>												
Cape Breton.....	439	433	6			64	62	2	494	489	5	
Halifax	1,403	1,403				100	100		1,980	1,980		
Pictou	1,001	1,001				3	3		944	944		
Yarmouth	604	604				47	47		652	652		
Totals.....	3,447	3,441	6			214	212	2	4,070	4,065	5	
<i>Prince Edward Island.</i>												
Charlottetown.....	597	597							464	464		
<i>Manitoba.</i>												
Winnipeg.....	610	608	2						842	840	2	
<i>British Columbia.</i>												
Victoria	561	561							223	223		

Inland Revenues—Weights and Measures and Gas.

B.

June, 1894, showing the Total Number brought for Verification, Verified and Rejected, and for the whole Dominion.

CAPACITY.		MEASURES OF LENGTH.			BALANCES, &c.								
Mis-cellaneous.					Equal Armed.			Steelyards.			Platform Scales, Weigh Bridges, &c.		
Brought for Verification.	Verified.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.
.....	.....	7	7	.....	203	203	.....	71	71	.....	764	764	.....
.....	.....	383	383	.....	2,700	2,687	13	2,193	2,189	4	5,637	5,604	33
3	3	196	179	17	235	203	32	41	31	10	799	699	100
.....	.....	.....	.....	.....	617	612	5	347	342	5	1,476	1,428	48
.....	.....	206	206	.....	221	221	.....	62	58	4	684	679	5
.....	.....	298	298	.....	353	353	.....	30	30	.....	1,412	1,407	5
17	17	463	463	.....	895	895	.....	493	493	.....	1,678	1,678	.....
.....	.....	84	84	.....	520	520	.....	108	107	1	1,181	1,175	6
20	20	1,637	1,620	17	5,744	5,694	50	3,345	3,321	24	13,631	13,484	197
.....
80	80	2,176	2,157	19	3,042	3,040	2	745	743	2	5,228	5,187	41
.....	.....	535	531	4	1,136	1,127	9	59	51	8	759	759	.....
.....	.....	285	285	.....	535	531	4	14	13	1	677	669	8
80	80	2,996	2,973	23	4,713	4,698	15	818	807	11	6,664	6,615	49
.....
.....	.....	.....	.....	.....	34	34	.....	2	2	.....	73	73	.....
.....	.....	4	4	.....	183	182	1	31	31	.....	410	403	7
3	3	54	54	.....	339	339	.....	37	37	.....	421	421	.....
3	3	58	58	.....	556	555	1	70	70	.....	904	897	7
.....
.....	.....	34	32	2	89	87	2	26	24	2	192	173	19
26	26	132	132	.....	245	245	.....	35	35	.....	565	565	.....
3	3	41	41	.....	168	168	.....	29	29	.....	390	390	.....
8	8	136	136	.....	100	100	.....	18	18	.....	148	148	.....
37	37	343	341	2	602	600	2	108	106	2	1,295	1,276	19
.....
.....	.....	10	10	.....	112	112	.....	14	14	.....	271	271	.....
.....
4	4	15	15	.....	92	91	1	35	34	1	409	382	27
.....
.....	.....	1	1	.....	98	98	.....	53	53	.....	380	380	.....

APPENDIX

RETURN of Weights and Measures Inspected during the Fiscal Year ended 30th
for each Division, for each Province,

RECAPIT

INSPECTION DIVISIONS.	WEIGHTS.									MEASURES OF		
	Dominion.			Troy.			Miscellaneous.			Dominion.		
	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.	
Ontario	31,644	31,559	85	43	43	44	43	1	44,694	43,922	772	
Quebec	32,319	32,287	52	32	32	956	952	4	30,324	30,299	25	
New Brunswick	3,555	3,555	.....	.....	.....	45	45	.....	4,864	4,862	2
Nova Scotia	3,447	3,447	.....	.....	.....	214	212	2	4,070	4,065	5
Prince Edward Island	597	597	.....	.....	.....	.....	.....	.....	464	464	.....
Manitoba	610	608	2	.....	.....	.....	.....	.....	842	840	2
British Columbia	561	561	.....	.....	.....	.....	.....	.....	223	223	.....
Grand Totals	72,733	72,594	139	75	75	1,259	1,252	7	85,481	84,675	806	

Inland Revenues—Weights and Measures and Gas.

B—*Concluded.*

June, 1894, showing the Total Number brought for Verification, Verified and Rejected, and for the whole Dominion.

ULATION.

CAPACITY.		MEASURES OF LENGTH.			BALANCES, &c.								
Miscellaneous.								Equal Armed.			Steelyards.			Platform Scales, Weigh Bridges, &c.
Brought for Verification.	Verified.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.
20	20	1,637	1,620	17	5,744	5,694	50	3,345	3,321	24	13,631	13,434	197
80	80	2,996	2,973	23	4,713	4,698	15	818	807	11	6,664	6,615	49
3	3	58	58	..	556	555	1	70	70	....	94	897	7
37	37	343	341	2	602	600	2	108	106	2	1,295	1,276	19
.....	.....	10	10	.....	112	112	.....	14	14	.....	271	271	.....
4	4	15	15	.....	92	91	1	35	34	1	409	382	27
4	4	1	1	.....	98	98	.....	53	53	...	380	380	.....
148	148	5,060	5,018	42	11,917	11,848	69	4,443	4,405	38	23,554	23,255	299

APPENDIX

RETURN showing the Number of Dominion Weights and Lineal Measures of each Year ended

INSPECTION DIVISIONS.	DOMINION													
	Avoir													
	60 lbs.	50 lbs.	30 lbs.	20 lbs.	10 lbs.	7 lbs.	5 lbs.	4 lbs.	3 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.
<i>Ontario.</i>														
Belleville						4	28	84	108	242	232	137	126	122
Hamilton	20				5	3	229	109	2,147	3,117	2,692	992	898	895
Kingston					3		58	108	108	215	229	175	155	132
London				1	3	15	107	267	351	684	626	419	393	341
Orillia							27	72	124	270	249	142	134	117
Ottawa					12	19	119	115	270	460	451	314	354	259
Toronto	2		1	8	33		131		653	1,001	946	577	528	441
Windsor					5	7	58	191	252	584	555	362	325	307
Totals	2	20	1	9	61	48	757	946	4,008	6,573	5,980	3,118	2,913	2,614
<i>Quebec.</i>														
Montreal	519	67	11	15	86	34	1,013	781	1,846	3,069	3,076	2,520	2,402	2,111
Quebec		90	23	37	93	367	467	591	488	1,100	1,064	1,020	940	836
Three Rivers		13	4	7	13	6	308	194	382	556	531	507	470	341
Totals	519	170	38	59	192	407	1,788	1,566	2,716	4,725	4,671	4,047	3,812	3,288
<i>New Brunswick.</i>														
Fredericton					1		8	26	7	42	37	29	26	24
King's		44	5	7	11	7	43	129	103	224	178	112	88	78
St. John					3	22	73	211	110	469	368	282	239	216
Totals		44	5	7	15	29	124	366	220	735	583	423	353	318
<i>Nova Scotia.</i>														
Cape Breton		19	10	8	20	1	23	12	50	105	74	38	30	22
Halifax		47			1	27	45	103	62	304	261	156	139	117
Pictou						11	30	55	59	218	182	115	101	90
Yarmouth		1	1	1	1	6	15	53	20	137	104	70	64	60
Totals		67	11	9	22	45	113	223	191	764	621	379	334	289
<i>Prince Edward Island.</i>														
Charlottetown						2	16	28	44	164	128	80	79	68
<i>Manitoba.</i>														
Winnipeg		104				1	14	7	75	108	98	39	34	34
<i>British Columbia.</i>														
Victoria						1	7	1	41	46	102	81	75	67

Inland Revenues—Weights and Measures and Gas.

C.

Denomination presented for Verification in each Inspection Division during the Fiscal 30th June, 1894.

WEIGHTS.							LINEAL MEASURES.													
dupois.							Troy Weights.	Miscellaneous Weights.	6 feet.	5 feet.	1 yard.	½ yard.	2 feet.	1 foot.	½ foot.	100 feet chains.	66 feet chains.	Tape or Riband.	Total Number.	Miscellaneous Measures.
1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Number.														
103	68	26	11	8	1	1,295													7	
883	794	146	8	1		12,939	39	3											383	
198	61	19	9	5		1,385		4											196	3
265	172	80	12	10	2	3,748		2												
104	49	11	4	1	1	1,305													206	
228	118	27	10	7		2,773		19											298	
367	238	89	23	21		5,059		4	15										463	17
253	162	68	5	4	2	3,140													84	
2,311	1,662	466	82	57	6	31,644	43	44			1,636	1							1,637	20
1,770	996	142	46	40	1	20,645	32	88			2,175				1				2,176	80
639	228	33	2			8,018		863			535								535	
214	98	10	2			3,656		5			285								285	
2,623	1,322	185	50	40	1	32,319	32	956			2,995				1				2,996	80
18	12	1				231														
65	18	4				1,106		39			4								4	
173	46	7				2,218		6			54								54	3
256	76	12				3,555		45			58								58	3
17	9	1				439		64			34								34	
108	19	9	2	3		1,403		100	11		121								132	26
76	48	14	5	1	1	1,001		3			41								41	3
48	17	6				604		47			136								136	8
249	93	30	7	4	1	3,447		214	11		332								343	37
58	19	6	2	3		597					10								10	
34	25	18	9	13		610					15								15	4
51	15	3	1			561					1								1	

APPENDIX

RETURN showing the Number of Dominion Weights and Lineal Measures of each
Fiscal year ended

INSPECTION DIVISIONS.	DOMINION													
	Avoir													
	60 lbs.	50 lbs.	30 lbs.	20 lbs.	10 lbs.	7 lbs.	5 lbs.	4 lbs.	3 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.
<i>Ontario.</i>														
Belleville.....					5	4	28	84	103	242	232	137	126	122
Hamilton.....	20				3	3	229	109	2,147	3,116	2,691	991	898	895
Kingston.....					3		42	83	104	213	222	164	150	127
London.....				1	3	15	107	267	351	684	626	418	393	341
Orillia.....							27	72	124	270	249	142	134	117
Ottawa.....					12	19	119	115	270	460	451	314	352	259
Toronto.....	2		1	8	33		131		653	1,001	946	577	528	441
Windsor.....					5	7	68	191	252	584	555	362	324	306
Totals.....	2	20	1	9	61	48	741	921	4,004	6,570	5,972	3,105	2,905	2,608
<i>Quebec.</i>														
Montreal.....	519	67	11	15	86	34	1,013	780	1,846	3,067	3,074	2,519	2,401	2,110
Quebec.....	90	23	37	92	364		467	585	488	1,095	1,058	1,015	937	835
Three Rivers.....	13	4	7	13	6		308	194	382	556	531	507	470	341
Totals.....	519	170	38	59	191	404	1,788	1,559	2,716	4,720	4,663	4,041	3,708	3,286
<i>New Brunswick.</i>														
Fredericton.....					1		8	26	7	42	37	29	26	24
King's.....	44	5	7	11	7		43	129	103	224	178	112	88	78
St. John.....					3	22	73	211	110	469	368	282	239	216
Totals.....	44	5	7	15	29		124	366	220	735	583	423	353	318
<i>Nova Scotia.</i>														
Cape Breton.....	19	10	8	20	1	21	50	105	74	37	28	22	16	
Halifax.....	47				1	27	45	103	62	304	261	156	139	117
Pictou.....						11	30	55	59	218	182	115	101	90
Yarmouth.....	1	1	1	1	6	15	53	20	137	104	70	64	60	
Totals.....	67	11	9	22	45	111	261	246	733	584	369	326	283	
<i>Prince Edward Island</i>														
Charlottetown.....						2	16	28	44	164	128	80	79	68
<i>Manitoba.</i>														
Winnipeg.....	104					1	14	7	74	108	97	39	34	34
<i>British Columbia.</i>														
Victoria.....						1	7	1	41	116	102	81	75	67

Inland Revenues—Weights and Measures and Gas.

C—Continued.

Denomination, Inspected and Verified, in each Inspection Division, during the 30th June, 1894.

WEIGHTS.								LINEAL MEASURES.													
dupois.								Troy Weights.	Miscellaneous Weights.												Miscellaneous Measures.
1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Number.	6 feet.			5 feet.	1 yard.	½ yard.	2 feet.	1 foot.	½ foot.	100 ft. chains.	66 ft. chains.	Tape or Ribband.	Total Number.		
103	68	26	11	8	1	1,295	.....	1	.....	7	.....	.....	.....	.....	.....	.....	.....	7	.....	
883	794	146	8	1	.....	12,936	.....	39	.....	383	.....	.....	.....	.....	.....	.....	.....	383	.....	
108	61	19	9	5	.....	1,310	.....	3	.....	179	.....	.....	.....	.....	.....	.....	.....	179	.....	
265	172	80	12	10	2	3,747	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
104	49	11	4	1	1	1,305	.....	.....	.....	206	.....	.....	.....	.....	.....	.....	.....	206	.....	
227	118	27	10	7	.....	2,770	.....	19	.....	298	.....	.....	.....	.....	.....	.....	.....	298	.....	
367	238	89	23	21	.....	5,059	.....	4	.....	462	.....	1	.....	.....	.....	.....	.....	463	.....	
252	162	68	5	4	2	3,137	.....	.....	.....	84	.....	.....	.....	.....	.....	.....	.....	84	.....	
2,309	1,662	466	82	57	5	31,559	.....	43	43	1,619	.....	1	.....	.....	.....	.....	.....	1,620	20
1,768	996	142	46	40	1	20,635	.....	32	88	2,156	.....	.....	.....	1	.....	.....	.....	2,157	80
638	227	33	2	.....	.....	7,986	.....	.....	859	531	.....	.....	.....	.....	.....	.....	.....	531	.....	
214	98	10	2	.....	.....	3,656	.....	.....	5	285	.....	.....	.....	.....	.....	.....	.....	285	.....	
2,620	1,321	185	50	40	1	32,277	.....	32	952	2,972	.....	.....	.....	1	.....	.....	.....	2,973	80
18	12	1	.....	.....	.....	231	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	18	4	.....	.....	.....	1,106	.....	39	.....	4	.....	.....	.....	.....	.....	.....	.....	4	.....	
173	46	7	.....	.....	.....	2,218	.....	6	.....	54	.....	.....	.....	.....	.....	.....	.....	54	3
256	76	12	.....	.....	.....	3,555	.....	45	.....	58	.....	.....	.....	.....	.....	.....	.....	58	3
9	1	.....	.....	.....	.....	433	.....	62	.....	32	.....	.....	.....	.....	.....	.....	.....	32	.....	
108	19	9	2	3	.....	1,403	.....	100	.....	132	.....	.....	.....	.....	.....	.....	.....	132	26
76	48	14	5	1	1	1,001	.....	3	.....	41	.....	.....	.....	.....	.....	.....	.....	41	3
48	17	6	.....	.....	.....	604	.....	47	.....	136	.....	.....	.....	.....	.....	.....	.....	136	8
241	85	29	7	4	1	3,447	.....	212	.....	341	.....	.....	.....	.....	.....	.....	.....	341	37
58	19	6	2	3	.....	597	.....	.....	.....	10	.....	.....	.....	.....	.....	.....	.....	10	.....	
34	25	18	9	13	.....	608	.....	.....	.....	15	.....	.....	.....	.....	.....	.....	.....	15	4
51	15	3	1	.....	.....	561	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	

APPENDIX

RETURN showing the Number of Dominion Weights and Measures during the Fiscal Year

INSPECTION DIVISIONS.	DOMINION												
	Avoir-												
	60 lbs.	50 lbs.	30 lbs.	20 lbs.	10 lbs.	7 lbs.	5 lbs.	4 lbs.	3 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.
<i>Ontario.</i>													
Hamilton.....									1	1	1		
Kingston.....						16	25	4	2	7	11	5	
London.....											1		
Ottawa.....											2		
Windsor.....													1
Totals.....						16	25	4	3	8	15	6	
<i>Quebec.</i>													
Montreal.....								1		2	2	1	1
Quebec.....					1	3		6		5	6	5	3
Totals.....					1	3		7		7	8	6	4
<i>Nova Scotia.</i>													
Cape Breton.....							2					1	2
<i>Manitoba.</i>													
Winnipeg.....									1		1		

Inland Revenues—Weights and Measures and Gas.

C—Concluded.

of each Denomination, Inspected and Rejected, in each Inspection Division, ended 30th June, 1894.

WEIGHTS.								Miscellaneous Weights.	LINEAL MEASURES.							
dupois.									1 yard.	½ yard.	2 feet.	1 foot.	½ foot.	100 feet chains.	66 feet chains.	Tape or Riband.	Total Number.
2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Number.									
5							3									
							75	1	17							17
	1						1									
	1						3									
							3									
6	2						85	1	17							17
1	2						10		19							19
1	1						32	4	4							4
2	3						42	4	23							23
	1						6	2	2							2
							2									

APPENDIX

RETURN showing the Number of Dominion Measures of Capacity, Balances and Weighing during the Fiscal Year

INSPECTION DIVISIONS.	MEASURE OF CAPACITY.										
	Dominion.										
	Bushel.	$\frac{1}{2}$ Bushel.	Peck.	Gallon.	$\frac{1}{2}$ Gallon.	Quart.	Pint.	$\frac{1}{2}$ Pint.	Gill.	$\frac{1}{2}$ Gill.	Total Number.
<i>Ontario.</i>											
Belleville.....	62	5	6	95	152	326	278	7	.....	.....	930
Hamilton.....	75	75	203	471	1,152	1,626	1,562	314	1	.....	5,479
Kingston.....	443	3,238	1,464	1,712	1,075	1,423	1,328	55	1	.....	10,739
London.....	.....	237	327	1,609	1,339	3,700	2,458	59	.....	.....	10,229
Orillia.....	2	11	20	180	317	379	225	13	1	.....	1,148
Ottawa.....	.....	24	73	412	640	768	565	214	63	.....	2,765
Toronto.....	10	326	231	1,304	1,617	3,075	4,293	792	2	.....	11,650
Windsor.....	30	60	91	266	399	545	309	54	.....	.....	1,754
Totals.....	621	3,976	2,413	6,049	6,691	11,842	11,018	1,508	68	.....	44,694
<i>Quebec.</i>											
Montreal.....	1	649	1,270	3,239	3,679	5,054	5,658	3,450	736	2	20,638
Quebec.....	6	157	61	943	1,244	1,268	1,385	714	289	6	6,073
Three Rivers.....	.....	244	99	504	811	895	593	389	73	5	3,613
Totals.....	7	1,050	1,430	4,686	5,734	7,217	7,636	4,553	1,098	13	30,324
<i>New Brunswick.</i>											
Fredericton.....	.....	13	15	63	83	59	29	3	1	.....	266
King's.....	.....	5	1	266	511	344	108	28	5	.....	1,268
St. John.....	.....	193	207	650	783	722	584	135	56	.....	3,330
Totals.....	.....	211	223	979	1,377	1,125	721	166	62	.....	4,864
<i>Nova Scotia.</i>											
Cape Breton.....	.....	6	2	75	165	142	67	34	3	.....	494
Halifax.....	1	126	72	363	452	480	301	132	53	.....	1,984
Pictou.....	.....	35	33	178	296	242	116	29	15	.....	944
Yarmouth.....	8	10	10	120	237	157	78	26	6	.....	652
Totals.....	9	177	117	736	1,150	1,021	562	221	77	.....	4,070
<i>Prince Edward Island.</i>											
Charlottetown.....	.....	.....	2	25	61	202	142	32	.....	.....	464
<i>Manitoba.</i>											
Winnipeg.....	72	1	.....	59	157	384	149	16	3	1	842
<i>British Columbia.</i>											
Victoria.....	.....	1	1	7	21	112	81	.....	.....	.....	223

Inland Revenues—Weights and Measures and Gas.

D.

Machines of each Denomination presented for Verification, in each Inspection Division, ended 30th June, 1894.

BALANCES.

With Equal Arms.				Steelyards, with Divided Arms.				Weigh Bridges, or Platform Scales.						Total.
5 lbs. and under.	5 lbs. to 50 lbs.	50 lbs. to 100 lbs.	100 lbs. and upwards.	500 lbs. and under.	500 lbs. to 1,000 lbs.	1,000 lbs. to 2,000 lbs.	2,000 lbs. and upwards.	250 lbs. and under.	250 lbs. to 500 lbs.	500 lbs. to 2,000 lbs.	2,000 lbs. to 4,000 lbs.	4,000 lbs. to 6,000 lbs.	6,000 lbs. and upwards.	
44	159			65	2	3	1	298	55	256	73	30	52	1,038
1,166	1,534			2,162	29	2		3,373	331	1,534	202	86	97	10,530
63	172			41				300	137	256	37	16	53	1,075
167	450			339	8			487	53	678	119	23	116	2,340
54	167			61		1		310	11	270	25	6	62	967
45	318			27	3			642	119	515	41	62	33	1,895
272	623			478	10	3	2	702	72	549	162	25	168	2,866
151	369			102	6			515	75	375	104	30	82	1,809
1,862	3,792			3,275	58	9	3	6,632	853	4,433	763	278	663	22,520
800	2,230		12	742	2		11	2,027	1,176	1,619	134	124	147	9,017
119	828	13	176	59				216	352	168	4	12	7	1,954
32	489	12	2	14				204	207	230	14	19	3	1,226
951	3,547	25	190	815	2		11	2,447	1,735	2,017	152	155	157	12,197
7	7			2				35	17	17	2		2	109
40	125		18	29	2			205	105	84	4	6	6	624
65	274			39				183	118	93	9	4	14	797
112	406		18	70	2			423	240	194	15	10	22	1,530
18	58	1	12	25				129	32	16	1	1	12	307
34	195	8	8	32	1	1	1	283	96	123	20	18	25	845
41	127			29				223	85	67	3	4	10	587
35	69		6	18				109	23	8	1	5	2	260
117	449	9	26	104	1	1	1	744	234	214	25	28	49	1,997
29	82	1		13			1	81	49	103	5	14	19	397
19	73			34		1		141	34	138	33	18	45	536
43	55			42	7	4		204	18	120	7	9	22	531

APPENDIX

RETURN showing the Number of Dominion Measures of Capacity, Balances and Weighing during the Fiscal Year

INSPECTION DIVISIONS.	MEASURES OF CAPACITY.									Total Number.	
	Dominion.										
	Bushel.	$\frac{1}{2}$ Bushel.	Peck.	Gallon.	$\frac{1}{2}$ Gallon.	Quart.	Pint.	$\frac{1}{2}$ Pint.	Gill.		$\frac{1}{2}$ Gill.
<i>Ontario.</i>											
Belleuille.....	61	5	6	95	152	326	278	7			930
Hamilton.....	75	74	202	469	1,149	1,610	1,558	312	1		5,450
Kingston.....	430	3,065	1,109	1,637	1,024	1,387	1,291	55	1		9,999
London.....		237	327	1,609	1,339	3,700	2,458	59			10,229
Orillia.....	2	11	19	180	317	379	225	13	1		1,417
Ottawa.....		24	73	412	646	767	565	214	63		2,764
Toronto.....	10	326	231	1,304	1,617	3,075	4,293	792	2		11,650
Windsor.....	30	60	91	266	398	545	309	54			1,753
Totals.....	608	3,802	2,058	5,972	6,642	11,789	10,977	1,506	68		43,922
<i>Quebec.</i>											
Montreal.....	1	648	1,270	3,239	3,679	5,049	5,656	3,448	736	2	23,628
Quebec.....	6	157	61	942	1,243	1,267	1,385	714	289	6	6,070
Three Rivers.....		243	96	500	811	892	593	388	73	5	3,601
Totals.....	7	1,048	1,427	4,681	5,733	7,208	7,624	4,550	1,098	13	30,299
<i>New Brunswick.</i>											
Fredericton.....		13	15	63	83	59	29	3	1		266
King's.....		5	1	266	511	342	108	28	5		1,266
St. John.....		193	207	650	783	722	584	135	56		3,330
Totals.....		211	223	979	1,377	1,123	721	166	62		4,862
<i>Nova Scotia.</i>											
Cape Breton.....		5	2	75	164	139	67	34	3		489
Halifax.....		126	72	363	452	480	301	132	53		1,980
Pictou.....		35	33	178	296	242	116	29	15		944
Yarmouth.....	8	10	10	120	237	157	78	26	6		652
Totals.....	9	176	207	736	1,149	1,018	562	221	77		4,065
<i>Prince Edward Island.</i>											
Charlottetown.....			2	25	61	202	142	32			464
<i>Manitoba.</i>											
Winnipeg.....	72	1		59	157	383	149	15	3	1	840
<i>British Columbia.</i>											
Victoria.....		1	1	7	21	112	81				223

Inland Revenues—Weights and Measures and Gas.

D—Continued.

Machines of each Denomination Inspected and Verified, in each Inspection Division, ended 30th June, 1894.

BALANCES.

With Equal Arms.				Steelyards, with Divided Arms.				Weigh Bridges or Platform Scales.						Total.
5 lbs. and under.	5 lbs. to 50 lbs.	50 lbs. to 100 lbs.	100 lbs. and upwards.	500 lbs. and under.	500 lbs. to 1,000 lbs.	1,000 lbs. to 2,000 lbs.	2,000 lbs. and upwards.	200 lbs. and under.	250 lbs. to 500 lbs.	500 lbs. to 2,000 lbs.	2,000 lbs. to 4,000 lbs.	4,000 lbs. to 6,000 lbs.	6,000 lbs. and upwards.	
44	159	.....	.....	65	2	3	1	298	55	256	73	30	52	1,038
1,165	1,522	.....	.....	2,159	29	1	.....	3,369	330	1,534	199	82	90	10,480
49	154	.....	.....	31	.....	.....	.....	271	106	236	30	13	43	933
167	445	.....	.....	335	7	.....	.....	471	52	657	117	21	110	2,382
54	167	.....	.....	61	.....	1	.....	308	11	267	25	6	62	679
45	318	.....	.....	27	3	.....	.....	642	119	511	41	61	33	1,800
272	623	.....	.....	478	10	3	2	702	72	549	162	25	168	2,866
151	369	.....	.....	101	6	.....	.....	513	75	374	104	30	79	1,802
1,947	2,757	.....	.....	3,277	57	8	3	6,574	820	4,384	751	268	637	21,980
800	2,228	...	12	740	2	.....	11	2,019	1,165	1,609	134	117	142	8,970
119	819	13	176	51	.....	.....	.....	216	352	168	4	12	7	1,937
31	486	12	2	13	.....	.....	.....	202	205	226	14	19	3	1,213
950	3,533	25	190	804	2	.....	11	2,437	1,722	2,003	152	148	152	12,120
7	7	.....	.....	2	.....	.....	.....	35	17	17	2	.....	2	109
39	125	.....	18	29	2	.....	.....	203	101	83	4	6	5	615
65	274	.....	.....	39	.....	.....	.....	183	118	93	9	4	14	797
111	406	.....	18	60	2	.....	.....	421	236	193	15	10	21	1,521
17	57	1	12	23	1	.....	.....	118	29	14	1	1	9	284
34	195	8	8	32	1	1	1	283	96	123	20	18	35	845
41	127	.....	.....	29	.....	.....	.....	223	83	67	3	4	10	587
25	69	.....	6	18	.....	.....	.....	109	23	8	1	5	2	260
117	448	9	26	102	2	1	1	733	231	212	25	28	46	1,976
29	82	1	.....	13	.....	.....	1	81	49	103	5	14	19	397
19	72	.....	.....	34	.....	1	.....	141	30	126	31	16	43	507
43	55	..	.....	42	7	4	.....	204	18	120	7	9	22	531

APPENDIX

RETURN showing the Number of Dominion Measures of Capacity, Balances and Division during the Fiscal Year

INSPECTION DIVISIONS.	MEASURES OF CAPACITY.										
	Dominion.										
	Bushel.	$\frac{1}{2}$ Bushel.	Peck.	Gallon.	$\frac{1}{2}$ Gallon.	Quart.	Pint.	$\frac{1}{2}$ Pint.	Gill.	$\frac{1}{2}$ Gill.	Total Number.
<i>Ontario.</i>											
Hamilton		1	1	2	3	16	4	2			29
Kingston	13	173	355	75	51	36	37				740
London											
Orillia			1								1
Ottawa						1					1
Windsor					1						1
Totals.....	13	174	357	77	55	53	41	2			772
<i>Quebec.</i>											
Montreal		1				5	2	2			10
Quebec				1	1	1					3
Three Rivers.....		1	3	4		3		1			12
Totals.....		2	3	5	1	9	2	3			25
<i>New Brunswick.</i>											
King's						2					2
<i>Nova Scotia.</i>											
Cape Breton		1			1	3					5
<i>Manitoba.</i>											
Winnipeg						1		1			2

Inland Revenues—Weights and Measures and Gas.

D—Concluded.

Weighing Machines of each Denomination Inspected and Rejected in each Inspection ended 30th June, 1894.

BALANCES.

With Equal Arms.				Steel Yards with Divided Arms.				Weigh Bridges or Platform Scales.						Total.
5 lbs. and under.	5 lbs. to 50 lbs.	50 lbs. to 100 lbs.	100 lbs. and upwards.	500 lbs. and under.	500 lbs. to 1,000 lbs.	1,000 lbs. to 2,000 lbs.	2,000 lbs. and upwards.	250 lbs. and under.	250 lbs. to 500 lbs.	500 lbs. to 2,000 lbs.	2,000 lbs. to 4,000 lbs.	4,000 lbs. to 6,000 lbs.	6,000 lbs. and upwards.	
1	12			3		1		9	1	9	3	4	7	50
14	18			10				29	31	20	7	3	10	142
	5			4	1			16	1	21	2	2	6	58
				4				2		3				9
										4		1		5
				1				2		1			3	7
15	35			22	1	1		58	33	58	12	10	26	271
	2			2				8	11	10		7	5	45
	9			8										17
1	3			1				2	2	4				13
1	14			11				10	13	14		7	5	75
1								2	4	1			1	9
1	1			2				11	3	2			3	23
	1			1				5	4	12	2	2	2	29

APPENDIX E.

STATEMENT of Gas Inspection Receipts and Expenditure for the Year ended 30th June, 1894.

Districts.	Inspectors.	EXPENDITURE.					Total Expenditure.	Total Receipts.
		Salaries.	Special Assistance.	Rent.	Travelling Expenses.	Sundries.		
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
<i>Ontario.</i>								
Barrie.....	Shanacy, M.....	100 00				4 55	104 55	53 75
Belleville.....	Johnson, Wm.....	250 00		50 00		42 48	342 48	56 25
Berlin.....	Lynes, K.....	100 00				10 80	110 80	127 00
Brockville.....	Giffin, W. W.....	100 00				28 43	128 43	199 75
Cobourg.....	Bickle, J. W.....	100 00			38 00	34 80	172 80	151 00
Cornwall.....	Mulhern, M. M.....	100 00			19 00	56 68	175 68	54 75
Guelph.....	Broadfoot, S.....	100 00				12 40	112 40	181 50
Hamilton.....	McPhie, D.....	1,300 00		36 00	110 20	48 49	1,494 69	1,164 00
	Dennis, A. W.....							
Kingston.....	Burrows, Wm.....	400 00		45 00		63 25	508 25	306 50
Listowel.....	Hawkins, A. St. G.....	100 00		60 00		0 55	160 55	70 75
London.....	Williams, J.....	1,000 00		110 00	216 85	85 00	1,411 85	1,153 75
Napanee.....	Elliott, Geo. M.....	100 00				6 00	106 00	69 00
Ottawa.....	Roche, H. G.....	900 00		200 00		112 55	1,212 55	305 50
Owen Sound.....	Graham, W. J.....	200 00		125 00			325 00	123 50
Peterborough.....	Cahill, T.....	200 00			23 75	15 95	239 70	206 75
Sarnia.....	Hicks, W. H.....			20 00		6 55	26 55	67 00
Stratford.....	Rennie, Geo.....	100 00					100 00	166 50
Toronto.....	Johnstone, J. K.....	2,206 91					2,252 86	4,793 00
	Pape, James.....					45 95		
<i>Quebec.</i>								
		7,356 91		646 00	407 80	574 43	8,985 14	9,250 25
Montreal.....	Aubin, A.....	2,200 00	77 50	120 00	13 25	86 98	2,497 73	4,903 44
	O'Flaherty, M. J.....							
Quebec.....	Levasseur, N.....	1,300 00		150 00		86 46	1,536 46	456 75
	Moreau, A.....							
Sherbrooke.....	Simpson, A. F.....	100 00					100 00	57 00
<i>New Brunswick.</i>								
		3,600 00	77 50	270 00	13 25	173 44	4,134 19	5,417 19
Fredericton.....	Purdie, S. A.....	200 00					200 00	36 00
Moncton.....	Lawlor, R. A.....	300 00			56 52	33 00	389 52	34 00
St. John.....	Rowan, A.....	1,000 00				74 98	1,074 98	371 25
<i>Nova Scotia.</i>								
		1,500 00			56 52	107 98	1,664 50	441 25
Halifax.....	Miller, A.....	1,300 00		310 20	459 23	107 63	2,177 06	472 75
	Munro, H. D.....							
<i>Prince Edward Island</i>								
Charlottetown.....	Knight, Jos.....	200 00				27 00	227 00	46 50
<i>Manitoba.</i>								
Winnipeg.....	Huggard, R. T.....	200 00		135 00		30 16	365 16	212 50
<i>British Columbia.</i>								
Nanaimo.....		58 31				230 74	289 05	33 00
New Westminster.....		58 31			1 50	391 02	450 83	154 25
Vancouver.....		58 31				392 16	450 47	183 50
Victoria.....	Jones, R.....	200 00		325 00		116 83	641 83	347 75
District Inspector.	Gill, Wm.....				43 50		43 50	
		374 93		325 00	45 00	1,130 75	1,875 68	718 50

Inland Revenues—Weights and Measures and Gas.

APPENDIX E—*Concluded.*

STATEMENT of Gas Inspection Receipts and Expenditure, &c.—*Concluded.*

	EXPENDITURE.					Total Expenditure.	Total Receipts.
	Salaries.	Special Assistance.	Rent.	Travelling Expenses.	Sundries.		
<i>General.</i>	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Contingencies				328 25	1,591 82	1,920 07	
Printing					326 88	326 88	
Stationery.....					99 63	99 63	
				328 25	2,018 33	2,346 58	

RECAPITULATION.

Ontario.....	7,356 91		646 00	407 80	574 43	8,985 14	9,250 25
Quebec.....	3,600 00	77 50	270 00	13 25	173 44	4,134 19	5,417 19
New Brunswick.....	1,500 00			56 52	107 98	1,664 50	441 25
Nova Scotia.....	1,300 00		310 20	459 23	107 63	2,177 06	472 75
Prince Edward Island.....	200 00				27 00	227 00	46 50
Manitoba.....	200 00		135 00		30 16	365 16	212 50
British Columbia.....	374 93		325 00	45 00	1,130 75	1,875 68	718 50
General.....				328 25	2,018 33	2,346 58	
	14,531 84	77 50	1,686 20	1,310 05	4,169 72	21,775 31	16,558 94

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times be- low Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Barrie :—									
July.....			19.76	16	0	1			
August.....			21.20	16	0	1			
September.....			23.09	16	0	1			
October.....									
November.....			22.76	16	0	1			
December.....			20.14	16	0	1			
January.....			20.58	16	0	1			
February.....			19.31	16	0	1			
March.....			20.59	16	0	1			
April.....			23.85	16	0	1			
May.....			21.93	16	0	1			
June.....			21.03	16	0	1			
					0	11			
Belleville :—									
July.....									
August.....	23.13	18.16	20.23	16	0	3			
September.....	21.76	20.89	21.20	16	0	4			
October.....			22.42	16	0	1			
November.....	24.97	22.23	23.60	16	0	2			
December.....									
January.....									
February.....									
March.....									
April.....	21.85	19.06	20.75	16	0	7			
May.....									
June.....									
					0	17			
Berlin :—									
July.....			16.52	16	0	1			
August.....			16.04	16	0	1			
September.....			16.57	16	0	1			
October.....			16.05	16	0	1			
November.....			12.43	16	1	1			
December.....			16.47	16	0	1			
January.....			18.10	16	0	1			
February.....			16.74	16	0	1			
March.....			17.09	16	0	1			
April.....			18.54	16	0	1			
May.....			17.76	16	0	1			
June.....			18.00	16	0	1			
					1	12			

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times be- low standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Brantford—									
July			19·66	16	0	1			
August			19·16	16	0	1			
September			19·44	16	0	1			
October									
November			20·77	16	0	1			
December			19·18	16	0	1			
January			19·76	16	0	1			
February			20·06	16	0	1			
March			19·34	16	0	1			
April			19·23	16	0	1			
May			19·50	16	0	1			
June			19·28	16	0	1			
					0	11			
Brockville—									
July			23·00	16	0	1			
August			21·62	16	0	1			
September			22·62	16	0	1			
October			21·74	16	0	1			
November			21·70	16	0	1			
December			21·36	16	0	1			
January			20·26	16	0	1			
February			21·73	16	0	1			
March			21·10	16	0	1			
April			21·06	16	0	1			
May			19·90	16	0	1			
June			22·10	16	0	1			
					0	12			
Chatham—									
July			16·50	16	0	1			
August			16·72	16	0	1			
September			16·86	16	0	1			
October			16·86	16	0	1			
November			16·22	16	0	1			
December			17·74	16	0	1			
January			16·22	16	0	1			
February			18·37	16	0	1			
March			16·87	16	0	1			
April			17·14	16	0	1			
May			18·84	16	0	1			
June			16·60	16	0	1			
					0	12			

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times be- low standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Cobourg—									
July			18·52	16	0	1			
August			22·33	16	0	1			
September			19·23	16	0	1			
October			21·21	16	0	1			
November			19·00	16	0	1			
December			18·34	16	0	1			
January			19·20	16	0	1			
February			18·05	16	0	1			
March			17·52	16	0	1			
April			17·55	16	0	1			
May			20·15	16	0	1			
June			18·27	16	0	1			
					0	12			
Cornwall—									
July			20·49	16	0	1			
August			18·30	16	0	1			
September			20·98	16	0	1			
October			20·31	16	0	1			
November			19·58	16	0	1			
December			17·32	16	0	1			
January			17·85	16	0	1			
February			17·21	16	0	1			
March			18·70	16	0	1			
April			18·31	16	0	1			
May			17·85	16	0	1			
June			18·69	16	0	1			
					0	12			
Dundas—									
July			19·02	16	0	1			
August			19·83	16	0	1			
September			22·00	16	0	1			
October									
November			19·18	16	0	1			
December			19·39	16	0	1			
January			17·85	16	0	1			
February			19·28	16	0	1			
March			19·23	16	0	1			
April			17·45	16	0	1			
May			18·06	16	0	1			
June			19·18	16	0	1			
					0	11			

Inland Revenues—Weights and Measures and Gas.

F—Continued.

Inspected during the Year ended 30th June, 1894.

100 Cubic Feet.			Ammonia per 100 Cubic Feet.					Sulphuretted Hydrogen.			Remarks.	
Standard.	Times in excess of allowance.	No. of Tests.	Highest	Lowest.	Average	Standard.	Times in excess of allowance.	No. of Tests.	No. of times ab-sent.	No. of times pre-sent.		No. of Tests.
Grains.	Times in excess of allowance.	No. of Tests.	Grains.	Grains.	Grains.	Grains.	Times in excess of allowance.	No. of Tests.	No. of times ab-sent.	No. of times pre-sent.		No. of Tests.
Grains.	Times in excess of allowance.	No. of Tests.	Grains.	Grains.	Grains.	Grains.	Times in excess of allowance.	No. of Tests.	No. of times ab-sent.	No. of times pre-sent.		No. of Tests.
									1	0	1	Nil.
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
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									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									19	0	19	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									12	0	12	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									11	0	11	

APPENDIX

RETURN of Illuminating Power and Purity of Gas

INSPECTION OFFICERS.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times be- low Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Galt—									
July			20·84	16	0	1			
August			18·86	16	0	1			
September			19·19	16	0	1			
October			20·49	16	0	1			
November			18·41	16	0	1			
December			17·92	16	0	1			
January			20·13	16	0	1			
February			17·89	16	0	1			
March			21·02	16	0	1			
April			21·34	16	0	1			
May			21·56	16	0	1			
June			22·86	16	0	1			
					0	12			
Guelph—									
July			21·04	16	0	1			
August			22·36	16	0	1			
September			23·11	16	0	1			
October			24·43	16	0	1			
November			24·15	16	0	1			
December			22·71	16	0	1			
January			22·72	16	0	1			
February			21·10	16	0	1			
March			20·01	16	0	1			
April			20·15	16	0	1			
May			20·85	16	0	1			
June			23·28	16	0	1			
					0	12			
Hamilton—									
July			17·70	16	0	1			
August			17·85	16	0	1			
September			18·14	16	0	1			
October			17·03	16	0	1			
November			17·71	16	0	1			
December			18·00	16	0	1			
January			16·97	16	0	1			
February			17·99	16	0	1			
March			16·94	16	0	1			
April			17·50	16	0	1			
May			17·20	16	0	1			
June			18·00	16	0	1			
					0	12			

APPENDIX

RETURN of Illuminating Power and Purity of Gas

INSPECTION OFFICES.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times below Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Ingersoll—									
July			21 22	16	0	1			
August			21 91	16	0	1			
September			22 72	16	0	1			
October			23 24	16	0	1			
November			22 96	16	0	1			
December			21 49	16	0	1			
January			22 80	16	0	1			
February			23 30	16	0	1			
March			23 00	16	0	1			
April			23 23	16	0	1			
May			22 90	16	0	1			
June			23 53	16	0	1			
					0	12			
Kingston—									
July	23 42	22 46	22 90	16	0	4			
August	24 25	22 14	23 19	16	0	4			
September			22 09	16	0	1			
October	24 93	22 55	23 56	16	0	4			
November	24 63	22 51	22 90	16	0	4			
December	24 91	21 82	23 06	16	0	4			
January	23 46	22 71	23 14	16	0	3			
February	25 90	23 75	24 69	16	0	3			
March	23 54	23 36	23 47	16	0	3			
April	25 81	21 17	24 18	16	0	3			
May	24 41	23 24	23 88	16	0	3			
June	24 06	23 20	23 49	16	0	3			
					0	39			
Lindsay—									
July			23 53	16	0	1			
August			27 60	16	0	1			
September			23 88	16	0	1			
October			22 37	16	0	1			
November			23 16	16	0	1			
December			22 34	16	0	1			
January			22 78	16	0	1			
February			20 42	16	0	1			
March			18 66	16	0	1			
April			22 16	16	0	1			
May			20 96	16	0	1			
June			21 60	16	0	1			
					0	12			

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times be- low Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Listowel—									
July.....			19.12	16	0	1			
August.....			18.45	16	0	1			
September.....			22.55	16	0	1			
October.....			20.00	16	0	1			
November.....			21.95	16	0	1			
December.....			21.40	16	0	1			
January.....			22.55	16	0	1			
February.....			21.55	16	0	1			
March.....			21.83	16	0	1			
April.....			20.27	16	0	1			
May.....			20.40	16	0	1			
June.....			22.04	16	0	1			
					0	12			
London—									
July.....	23.51	22.50	22.89	16	0	3			
August.....	23.70	24.24	23.07	16	0	3			
September.....	23.77	23.04	23.44	16	0	3			
October.....	23.60	22.11	22.85	16	0	3			
November.....	25.00	22.94	24.06	16	0	3			
December.....	24.20	23.33	23.78	16	0	3			
January.....	25.03	23.76	24.26	16	0	3			
February.....	24.80	24.02	24.41	16	0	2			
March.....	25.50	24.00	24.83	16	0	3			
April.....	26.01	24.00	24.86	16	0	3			
May.....	24.90	23.00	24.32	16	0	3			
June.....	24.24	22.02	23.48	16	0	3			
					0	35			
Napanee—									
July.....			18.76	16	0	1			
August.....			19.06	16	0	1			
September.....			13.71	16	1	1			
October.....			14.93	16	1	1			
November.....			16.20	16	0	1			
December.....			16.61	16	0	1			
January.....			15.75	16	1	1			
February.....			13.92	16	1	1			
March.....			16.65	16	0	1			
April.....			15.26	16	1	1			
May.....			13.98	16	1	1			
June.....			16.99	16	0	1			
					6	12			

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times below Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Ottawa—									
July	20·23	19·90	20·06	16	0	2	16·13	14·93	15·53
August	25·75	18·77	22·26	16	0	2	13·78	8·87	11·32
September	21·85	21·10	21·47	16	0	2	12·02	8·98	10·50
October	13·50	13·32	13·41	16	0	2	11·29	8·59	9·94
November	20·95	18·52	19·78	16	0	2	14·28	8·95	11·66
December	21·15	19·86	20·50	16	0	2	14·82	14·55	14·68
January	22·79	22·15	22·47	16	0	2	14·63	14·24	14·43
February	21·89	20·56	21·22	16	0	2	13·13	11·82	12·47
March	23·24	22·27	22·75	16	0	2	13·57	8·88	11·22
April	23·10	22·50	22·80	16	0	2	13·35	11·45	12·40
May	23·48	23·22	23·35	16	0	2	13·68	11·49	12·58
June	22·10	20·77	21·43	16	0	2	11·54	10·09	10·81
					0	24			
Owen Sound—									
July			22·40	16	0	1			
August			22·70	16	0	1			
September			22·60	16	0	1			
October			23·27	16	0	1			
November			21·88	16	0	1			
December			20·60	16	0	1			
January			21·70	16	0	1			
February			22·12	16	0	1			
March			23·33	16	0	1			
April			24·90	16	0	1			
May			25·00	16	0	1			
June			22·70	16	0	1			
					0	12			
Peterborough—									
July			22·07	16	0	1			
August			21·21	16	0	1			
September			23·66	16	0	1			
October			22·78	16	0	1			
November			22·03	16	0	1			
December			22·65	16	0	1			
January			22·15	16	0	1			
February			22·64	16	0	1			
March			25·60	16	0	1			
April			21·88	16	0	1			
May			21·60	16	0	1			
June			22·60	16	0	1			
					0	12			

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times below Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Port Hope—									
July.....			17.52	16	0	1			
August.....			17.81	16	0	1			
September.....			16.98	16	0	1			
October.....			16.95	16	0	1			
November.....			17.82	16	0	1			
December.....			16.93	16	0	1			
January.....			16.85	16	0	1			
February.....			18.39	16	0	1			
March.....			17.06	16	0	1			
April.....			17.33	16	0	1			
May.....			19.74	16	0	1			
June.....			19.34	16	0	1			
					0	12			
Sarnia—									
July.....			19.71	16	0	1			
August.....			20.21	16	0	1			
September.....			20.61	16	0	1			
October.....									
November.....									
December.....			20.93	16	0	1			
January.....			20.39	16	0	1			
February.....			21.23	16	0	1			
March.....			20.21	16	0	1			
April.....			20.03	16	0	1			
May.....			20.85	16	0	1			
June.....			21.00	16	0	1			
					0	10			
Stratford—									
July.....			16.96	16	0	1			
August.....			16.59	16	0	1			
September.....			16.63	16	0	1			
October.....			19.96	16	0	1			
November.....			16.57	16	0	1			
December.....			16.76	16	0	1			
January.....			17.00	16	0	1			
February.....			16.19	16	0	1			
March.....			16.85	16	0	1			
April.....			16.80	16	0	1			
May.....			17.20	16	0	1			
June.....			16.31	16	0	1			
					0	12			

Inland Revenues—Weights and Measures and Gas.

F—Continued.

Inspected during the Year ended 30th June, 1894.

100 Cubic Feet.			Ammonia per 100 Cubic Feet.				Sulphuretted Hydrogen.			Remarks.		
Standard.	Times in excess of allowance.	No. of Tests.	Highest	Lowest.	Average	Standard.	Times in excess of Allowance.	No. of Tests.	No. of times absent.		No. of times present.	No. of Tests.
Grains.			Grains.	Grains.	Grains.	Grains.							No. of tests.	No. of Tests.
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
									19	0	19	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
									10	0	10	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
.....	1	0	1	
									12	0	12	
									No test.			
									No test.			

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times below Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
St. Catharines—									
July.....			19.55	16	0	1			
August.....			18.50	16	0	1			
September.....			18.78	16	0	1			
October.....									
November.....			19.28	16	0	1			
December.....			18.78	16	0	1			
January.....			18.84	16	0	1			
February.....			19.34	16	0	1			
March.....			18.92	16	0	1			
April.....			18.68	16	0	1			
May.....			19.28	16	0	1			
June.....			19.97	16	0	1			
					0	11			
St. Thomas—									
July.....			16.86	16	0	1			
August.....			18.00	16	0	1			
September.....			17.16	16	0	1			
October.....			16.09	16	0	1			
November.....			17.70	16	0	1			
December.....			17.70	16	0	1			
January.....			17.50	16	0	1			
February.....			16.86	16	0	1			
March.....			16.77	16	0	1			
April.....			17.55	16	0	1			
May.....			16.86	16	0	1			
June.....			17.00	16	0	1			
					0	12			
Toronto—									
July.....	21.63	18.98	20.41	16	0	8	10.74	9.05	9.89
August.....	21.45	18.01	20.50	16	0	9	14.18	9.88	12.03
September.....	22.05	17.39	20.16	16	0	9	15.21	10.44	12.82
October.....	22.51	16.31	19.66	16	0	8	11.34	9.08	10.21
November.....	21.82	19.80	20.81	16	0	9	15.48	8.28	11.88
December.....	21.29	18.78	20.13	16	0	9	8.79	7.08	7.93
January.....	20.93	17.28	19.06	16	0	10	15.95	6.05	10.61
February.....	21.81	17.79	19.71	16	0	8	11.26	5.72	8.49
March.....	22.63	18.21	20.84	16	0	9	6.99	3.44	5.21
April.....	23.77	19.56	21.08	16	0	8	8.27	6.87	7.57
May.....	22.30	19.92	21.00	16	0	9	6.31	4.22	5.26
June.....	23.26	18.93	21.00	16	0	9	7.38	6.42	6.90
					0	105			

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times be- low Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Windsor—									
July.....			17.70	16	0	1			
August.....			16.86	16	0	1			
September.....			16.50	16	0	1			
October.....			16.57	16	0	1			
November.....			16.86	16	0	1			
December.....			16.36	16	0	1			
January.....			16.36	16	0	1			
February.....			17.70	16	0	1			
March.....			16.73	16	0	1			
April.....			17.01	16	0	1			
May.....			17.00	16	0	1			
June.....			16.86	16	0	1			
					0	12			
Woodstock—									
July.....			22.20	16	0	1			
August.....			22.37	16	0	1			
September.....			22.70	16	0	1			
October.....			23.84	16	0	1			
November.....			21.09	16	0	1			
December.....			21.51	16	0	1			
January.....			24.17	16	0	1			
February.....			22.53	16	0	1			
March.....			23.70	16	0	1			
April.....			22.21	16	0	1			
May.....			17.00	16	0	1			
June.....			23.05	16	0	1			
					0	12			
Montreal—									
July.....	22.56	19.98	20.73	16	0	9	19.37	13.48	16.37
August.....	26.07	20.61	22.66	16	0	9	19.34	17.58	18.46
September.....	22.33	19.20	20.94	16	0	8	22.05	13.98	18.01
October.....	22.38	20.01	20.77	16	0	9	17.95	17.08	17.51
November.....	22.76	19.47	20.37	16	0	9	19.85	16.21	18.03
December.....	21.30	19.42	20.31	16	0	9	17.30	16.89	17.09
January.....	23.54	18.26	21.20	16	0	9	13.49	12.50	12.99
February.....	20.84	20.01	20.16	16	0	8	23.40	19.88	21.64
March.....	21.66	20.00	20.78	16	0	9	20.52	19.16	19.84
April.....	20.31	20.00	20.06	16	0	8	28.55	18.43	23.49
May.....	22.68	19.88	20.88	16	0	10	28.90	26.62	27.76
June.....	23.85	21.44	22.58	16	0	9	21.31	19.05	20.18
					0	106			

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times below Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Quebec—									
July.....			16.41	16	0	1	20.41	15.40	17.90
August.....			16.33	16	0	1	20.52	15.54	18.03
September.....			16.64	16	0	1	23.23	20.75	21.99
October.....			16.12	16	0	1	20.51	14.92	17.71
November.....			16.94	16	0	1	23.94	20.11	22.02
December.....			16.15	16	0	1	22.42	15.39	18.90
January.....			16.77	16	0	1	16.98	14.67	15.82
February.....			16.55	16	0	1	26.16	14.64	20.40
March.....			16.51	16	0	1	23.21	19.70	21.45
April.....			16.22	16	0	1	20.96	17.60	19.28
May.....			17.56	16	0	1	20.16	18.23	19.19
June.....			18.57	16	0	1	15.69	11.62	13.65
					0	12			
Sherbrooke—									
July.....			25.57	16	0	1			
August.....			27.51	16	0	1			
September.....			28.30	16	0	1			
October.....			25.24	16	0	1			
November.....			25.80	16	0	1			
December.....			21.91	16	0	1			
January.....			24.51	16	0	1			
February.....			23.62	16	0	1			
March.....			22.24	16	0	1			
April.....			24.23	16	0	1			
May.....			23.16	16	0	1			
June.....			24.91	16	0	1			
					0	12			
Chatham, N.B.—									
July.....	16.67	16.11	16.41	16	0	3			
August.....	16.46	16.22	16.32	16	0	3			
September.....	16.77	16.09	16.41	16	0	3			
October.....									
November.....	17.06	16.15	16.54	16	0	3			
December.....	16.34	16.03	16.21	16	0	2			
January.....	16.13	15.77	15.95	16	1	2			
February.....									
March.....									
April.....									
May.....									
June.....									
					1	16			

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times below Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Fredericton—									
July.....			16.98	16	0	1			
August.....			16.61	16	0	1			
September.....			16.76	16	0	1			
October.....			19.66	16	0	1			
November.....			19.66	16	0	1			
December.....			18.48	16	0	1			
January.....			18.37	16	0	1			
February.....			16.89	16	0	1			
March.....			18.12	16	0	1			
April.....			18.89	16	0	1			
May.....			18.06	16	0	1			
June.....			18.64	16	0	1			
					0	12			
Moncton—									
July.....	17.16	17.04	17.10	16	0	2			
August.....			16.53	16	0	1			
September.....									
October.....									
November.....	16.58	16.11	16.34	16	0	2			
December.....			16.36	16	0	1			
January.....			16.37	16	0	1			
February.....									
March.....			16.18	16	0	1			
April.....									
May.....			16.53	16	0	1			
June.....									
					0	9			
St. John—									
July.....	19.54	17.41	19.35	16	0	8			27.85
August.....	21.86	17.78	19.38	16	0	6	31.27	29.71	29.99
September.....	20.70	19.61	20.24	16	0	6	29.33	15.45	17.54
October.....	20.70	18.21	19.37	16	0	8	28.09	17.47	22.69
November.....	19.99	15.76	17.50	16	0	8	21.29	15.41	18.25
December.....	20.09	17.09	18.37	16	0	8	18.54	16.16	17.34
January.....	20.22	18.05	18.93	16	0	8	18.59	15.34	17.12
February.....	19.58	17.34	18.33	16	0	4	20.63	9.69	14.56
March.....	20.48	16.95	18.45	16	0	7	22.02	15.02	18.95
April.....	20.11	16.89	18.79	16	0	3	19.62	17.24	18.43
May.....	20.63	17.55	19.09	16	0	8	20.07	7.76	11.56
June.....	20.26	16.80	18.57	16	0	8	29.99	15.95	26.13
					0	82			

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times below Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Halifax—									
July.....	18·35	17·03	17·69	16	0	2	10·99	8·65	9·82
August.....	18·11	18·00	18·05	16	0	2	8·74	7·86	8·30
September.....	17·04	16·56	16·80	16	0	2	10·91	8·33	9·62
October.....	17·52	17·39	17·45	16	0	2	14·08	11·23	12·65
November.....	17·76	17·53	17·64	16	0	2	22·62	8·22	15·42
December.....	17·11	17·00	17·05	16	0	2	8·67	5·76	6·71
January.....	17·39	17·30	17·34	16	0	2	11·72	9·30	10·50
February.....	18·61	17·87	18·24	16	0	2	9·94	8·47	9·20
March.....	18·54	17·20	17·87	16	0	2	9·47	5·96	7·71
April.....	17·68	17·14	17·41	16	0	2	11·90	11·14	11·52
May.....	17·39	17·19	17·29	16	0	2	11·05	9·59	10·32
June.....	17·62	17·10	17·26	16	0	2	11·66	11·15	11·40
					0	24			
Pictou—									
July.....			18·33	16	0	1			
August.....			18·10	16	0	1			
September.....			17·44	16	0	1			
October.....			17·00	16	0	1			
November.....			17·20	16	0	1			
December.....			19·33	16	0	1			
January.....			18·04	16	0	1			
February.....			18·16	16	0	1			
March.....			18·29	16	0	1			
April.....			18·00	16	0	1			
May.....			18·40	16	0	1			
June.....			16·12	46	0	1			
					0	12			
Yarmouth—									
July.....			19·74	16	0	1			
August.....			18·00	16	0	1			
September.....			16·27	16	0	1			
October.....			16·34	16	0	1			
November.....			16·39	16	0	1			
December.....			17·30	16	0	1			
January.....			17·45	16	0	1			
February.....			17·20	16	0	1			
March.....			17·40	16	0	1			
April.....			17·25	16	0	1			
May.....			17·40	16	0	1			
June.....			18·11	16	0	1			
					0	12			

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times below Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Charlottetown—									
July.....	19·51	18·00	18·70	16	0	3			
August.....	21·00	18·82	20·17	16	0	3			
September.....	20·90	20·17	20·45	16	0	3			
October.....	21·23	20·37	20·77	16	0	3			
November.....	20·02	18·93	19·60	16	0	3			
December.....	21·70	19·13	20·27	16	0	3			
January.....	20·73	19·01	19·87	16	0	2			
February.....	19·70	19·30	19·52	16	0	3			
March.....	20·58	19·89	20·24	16	0	3			
April.....	19·55	18·70	19·19	16	0	3			
May.....	20·07	19·57	19·79	16	0	3			
June.....	20·52	19·03	19·88	16	0	3			
					0	35			
Winnipeg—									
July.....			20·10	16	0	1			
August.....			20·30	16	0	1			
September.....			19·22	16	0	1			
October.....			20·03	16	0	1			
November.....			19·90	16	0	1			
December.....			19·60	16	0	1			
January.....			20·80	16	0	1			
February.....			22·22	16	0	1			
March.....			19·60	16	0	1			
April.....			18·60	16	0	1			
May.....			20·46	16	0	1			
June.....			20·60	16	0	1			
					0	12			
Victoria--									
July.....	18·21	17·38	17·70	16	0	3			
August.....	19·27	18·10	18·68	16	0	2			
September.....	19·05	18·38	18·71	16	0	2			
October.....	19·54	16·58	18·06	16	0	2			
November.....	18·82	18·30	18·66	16	0	2			
December.....	18·39	18·11	18·25	16	0	2			
January.....	18·02	17·90	17·96	16	0	2			
February.....	18·26	18·10	18·18	16	0	2			
March.....	18·33	18·17	18·25	16	0	2			
April.....	18·91	18·74	18·83	16	0	2			
May.....	18·10	17·90	18·00	16	0	2			
June.....	18·77	18·57	18·67	16	0	2			
					0	25			

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICERS.	Illuminating Power.						Sulphur per		
	Highest.	Lowest.	Average.	Standard.	No. of times below standard.	No. of Tests.	Highest.	Lowest.	Average
	Candles.	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Nanaimo—									
July.....									
August.....									
September.....									
October.....									
November.....									
December.....									
January.....			22.78	16	0	1			
February.....									
March.....			23.21	16	0	1			
April.....			17.92	16	0	1			
May.....			24.43	16	0	1			
June.....			18.92	16	0	1			
					0	5			
New Westminster—									
July.....									
August.....									
September.....									
October.....									
November.....									
December.....									
January.....			18.48	16	0	1			
February.....			18.34	16	0	1			
March.....			18.50	16	0	1			
April.....			18.36	16	0	1			
May.....			18.08	16	0	1			
June.....			17.02	16	0	1			
					0	6			
Vancouver—									
July.....									
August.....									
September.....									
October.....									
November.....									
December.....									
January.....			18.68	16	0	1			
February.....			19.04	16	0	1			
March.....			17.89	16	0	1			
April.....			17.15	16	0	1			
May.....			18.50	16	0	1			
June.....			18.42	16	0	1			
					0	6			

Inland Revenues—Weights and Measures and Gas.

F—Concluded.

Inspected during the Year ended 30th June, 1894.

10 Cubic Feet.			Ammonia per 100 Cubic Feet.				Sulphuretted Hydrogen.			Remarks.		
Standard.	Times in excess of allowance.	No. of Tests.	Highest	Lowest.	Average	Standard.	Times in excess of allowance.	No. of Tests.	No. of times absent.		No. of times present.	No. of Tests.
Grains.			Grains.	Grains.	Grains.	Grains.			sent.		sent.	
									1	0	1	Gas works opened. No test.
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									5	0	5	
									1	0	1	New office.
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									6	0	6	
									1	0	1	New office.
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									1	0	1	
									6	0	6	

APPENDIX G.

STATEMENT of Gas Meters presented for Verification, Verified, Verified after first Rejection, and Rejected during the year ended 30th June, 1894.

Inspection Offices.	Presented for Verification.		Verified as coming within the Error Tolerated by Law.			Verified after First Rejection.			Rejected.			Total Verified and Rejected.		
	Wet.	Dry.	Correct.	Fast.	Slow.	Correct.	Fast.	Slow.	Unsound.	Fast.	Slow.	Verified.	Rejected.	
														Kind.	Correct.	Fast.	Slow.	Unsound.	Fast.	Slow.
Barrie.....	19	19		5	14							19		
Belleveille.....	22	22	7	4	7				4			18	4	
Berlin.....	64	64	8	22	34							64		
Brantford.....	237	237	46	57	134							237		
Brockville.....	143	143	142			1						143		
Chatham.....	56	56	8	9	32			4	2		1	53	3	
Cobourg.....	42	42	6	19	17							42		
Cornwall.....	16	16	4	8	4							16		
Dundas.....	9	9			9							9		
Galt.....	115	115	6	38	71							115		
Guelph.....	134	134	3	39	89					1	2	131	3	
Hamilton.....	552	131	73	347						1		551	1	
Ingersoll.....	32	32	6	9	16					1		31	1	
Kingston.....	258	258	30	79	152					6		252	6	
Listowell.....	34	34	1	22	11							34		
London.....	381	381	75	110	181	2	1		2	9	1	369	12	
Napanee.....	27	27	4	11	12							27		
Ottawa.....	171	171		39	132							171		
Owen Sound.....	89	89	85	2	2							89		
Peterborough.....	68	68	12	10	45						1	67	1	
Port Hope.....	39	39	6	4	24		1	1		1	2	36	3	
Sarnia.....	34	34	28	1	5							34		
Stratford.....	169	169	38	24	106					1		168	1	
St. Catharines.....	72	72	7	3	62							72		
St. Thomas.....	154	154	26	53	58		3	1	1	2		151	3	
Toronto.....	4,247	4,247	868	723	2,609				11	25	11	4,200	47	
Windsor.....	50	50	15	21	14							50		
Woodstock.....	173	173	32	66	75							173		
Montreal.....	3,754	3,754	362	517	2,860				5	2	8	3,739	15	
Quebec.....	229	229	127	48	54							229		
Sherbrooke.....	10	10	4	3	3							10		
St. John.....	207	207	57	22	128							207		
Halifax.....	334	294	40	139	35	106	2		2			332	2	
Pictou.....	15	15	3	5	6				1			14	1	
Yarmouth.....	29	29	6	5	17					1		28	1	
Charlottetown.....	54	54	8	9	20				6	8	2	38	16	
Winnipeg.....	158	158	96	2	60							158		
Victoria.....	286	1	285	94	110	63				17	1	268	18	
Nanaimo.....	35	35	3	13	14	2	2		1			34	1	
New Westminster.....	140	140	16	74	29				2	17	2	119	21	
Vancouver.....	175	175	38	36	81					3	17	155	20	
Total.....	12,833	317	12,511	2,485	2,595	7,356	7	7	6	37	95	48	12,653	180

58 Victoria.

Sessional Papers (No. 7B.)

A. 1895

REPORTS, RETURNS AND STATISTICS

OF THE

INLAND REVENUES

OF THE

DOMINION OF CANADA

FOR THE FISCAL YEAR ENDED 30TH JUNE,

1894

PART III.—ADULTERATION OF FOOD

PRINTED BY ORDER OF PARLIAMENT



OTTAWA

PRINTED BY S. E. DAWSON, PRINTER TO THE QUEEN'S MOST
EXCELLENT MAJESTY

1895

No. 7B—1895.] *Price 10 cents.*

Inland Revenue—Adulteration of Food.

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Inland Revenue—Adulteration of Food.

INSPECTION OF FOODS AND DRUGS AND FERTILIZERS.

DEPARTMENT OF INLAND REVENUE,
OTTAWA, 20th February, 1895.

To the Honourable the Controller of Inland Revenue.

SIR,—I have the honour to submit herewith, the reports of the analysts appointed under the Act, together with tabulated statement prepared in this department of the results of the analysis of the various samples submitted to them.

The following is a summary statement of the whole number of samples analysed during the year ended 30th June, 1894:—

Description.	Genuine.	Adulterated	Doubtful.	Unclassed.	Total.
Cocoa	19	6	3	5	33
Chocolate.....	18	3	4	4	29
Milk.....	294	38	47		379
Wine.....	52	25	21	12	110
Tinctures.....	5		1		6
Mustard.....	5	29			34
Pepper.....	32	27	3		62
Honey.....	51	3		14	68
Bees-wax.....	8				8
Tea.....	31	13	7		51
Fertilizers.....	96	2		29	127
Butter.....	95	13	6		114
Total.....	706	159	92	64	1,021

The proportion of articles found to be adulterated is considerably less than that shown in my last report, leading to the hope that the work of the department, under this Act, is beginning to make itself felt.

This is especially noticeable in respect of the milk supply, as will be seen in examining the statement given above, and comparing it with the statistics of the preceding decade. In 1884, for example, 45 out of 182 samples of milk were found to be adulterated, as against 38 in 1894, out of a total of 379. It is true that in the last year, 47 cases are reported doubtful, but the varying yield of butter-fat in different localities and under different conditions would justify the conclusion that many, nay, most of these doubtful cases, resulted from natural causes, rather than from any fraudulent intent.

I have the honour to be, sir,

Your obedient servant,

E. MIALL,

Commissioner of Inland Revenue.

Inland Revenue—Adulteration of Food.

REPORTS OF PUBLIC ANALYSTS.

HALIFAX, N.S., 27th October, 1894.

The Commissioner of Inland Revenue,
Ottawa.

SIR,—I have the honour to submit my annual report on foods, drugs, &c., received for analysis during the year ending 30th June, 1894, viz. :—

Samples.	Genuine.	Adulterated	Doubtful.	Total.
Milk	29	2	11	42
Fertilizers	25	2	.....	27
Wines	12	.....	6	18
Honey	17	3	.....	20
Butter	11	6	.....	17
Total	94	13	17	124

The eleven samples of milk returned as doubtful are those whose solids not fat or fat fell below the limit, but not sufficiently so to warrant their being classed as adulterated.

I have the honour to be, sir,
Your obedient servant,
MAYNARD BOWMAN.

CHEMICAL LABORATORY, 74 GERMAIN ST.,
ST. JOHN, N.B., 31st July, 1894.

The Commissioner of Inland Revenue,
Ottawa.

SIR,—I beg to submit my report on the food samples received for analysis during the year ending 30th June, 1894.

During the year I have received 92 samples, viz. :—

Articles.	Genuine.	Adulterated	Doubtful.	Total.
Cocoa	5	.....	.....	5
Chocolate	4	.....	.....	4
Milk	22	3	1	26
Wine	12	.....	.....	12
Black pepper	1	3	.....	4
White pepper	2	2	.....	4
Mustard .....	.....	4	.....	4
Tea	8	1	.....	9
Butter	12	.....	.....	12
Fertilizers	12	.....	.....	12
	78	13	1	92

Milk.

With regard to the samples of milk examined it may be noted that there were but three which showed a deficiency in cream, and none showed evidence of having been watered. A single sample taken from the milk supplied to the public hospital proved to be of good quality; and it would appear to be very necessary that frequent tests should be made of milk furnished to that institution.

Butter.

Two of the butter samples showed somewhat abnormal Iodine and Reichert numbers, indicating a slight admixture of some foreign fat. The quantity present must, however, have been small. Compared with samples taken in some previous years there is a marked improvement in the butter on sale in this city.

Wines.

Some of the samples of foreign wines appeared to indicate that certain bacteria had multiplied at the expense of the sugar. This was not noticed in the case of native wines.

Tea.

Of the various teas examined only one was notoriously bad, being quite unfit for use, containing as it did sea-weed and foreign leaves.

Fertilizers.

The samples of different brands of fertilizers examined were of good quality, and well up to the standard strength.

I have the honour to be, sir,

Your obedient servant,

W. F. BEST,
Public Analyst.

QUEBEC, 29th October, 1894.

The Commissioner of Inland Revenue,
Ottawa.

SIR,—I have the honour to inclose my report for the term ended 30th June, 1894. Since the month of July, 1893, I analysed 105 samples, viz. :—

—	Pure.	Adulterated	Doubtful.	Total.
Wine	5		7	12
Milk	19	7		26
Tinctures	5		1	6
Pepper	6	2	2	10
Mustard		6		6
Tea	7	5	1	13
Fertilizers	16			16
Butter	14		2	16
Total	72	20	13	105

Inland Revenue—Adulteration of Food.

Milk.

I must remark that the inspection of this important article has been looked after by the Quebec health office and the city council, and they established a board of inspection. The health office, or rather the city council, does not act under the Adulteration of Food Act, but under authority of Quebec city regulations. The type adopted in these regulations is 3·00 butter-fat. The limits are lower than in the department bulletin. The inspector began operations in August, and the results will be officially published in a few months.

Butter.

The samples submitted contained water but no oleomargarine.

I have the honour to be, sir,
Your obedient servant,

DR. M. FISET,
Public Analyst.

MONTREAL, 8th November, 1894.

The Commissioner of Inland Revenue,
Ottawa.

SIR,—I have the honour to submit my report on the inspection of food, drugs, &c., for the year ending 30th June, 1894. During this period I have examined 186 samples with the results shown below :—

Samples.	Genuine.	Adulterated	Doubtful.	Total.
Milk.....	67	10	7	84
Wines.....	5	9	3	17
Cocoa.....	14			14
Condiments.....	2	15		17
Butter.....	14	3		17
Teas.....	12	4	4	20
Fertilizers.....	17			17
Total	131	41	14	186

I have the honour to be, sir,
Your obedient servant,

J. BAKER EDWARDS, *Pl. D.*,
Official Analyst.

OTTAWA, 24th October, 1894.

To the Commissioner of Inland Revenue,
Ottawa.

SIR,—I have the honour to submit to you my report of the work done in my laboratory during the year ended 30th June, 1894.

Name of Sample.	Genuine.	Adulterated	Doubtful.	Total.
Cocoa.....	1	1	3	5
Chocolate.....	1	2	1	4
Milk.....	46	1	5	52
Wine.....	7		5	12
Pepper.....		8		8
Mustard.....		4		4
Honey.....	14			14
Wax.....	4			4
Fertilizers.....	17			17
Butter.....	11		1	12
Total.....	101	16	15	132

I have the honour to be, sir,
Your obedient servant,F. X. VALADE, M.D.,
*Public Analyst.*SCHOOL OF PRACTICAL SCIENCE,
TORONTO, 5th November, 1894.The Chief Analyst,
Ottawa.

SIR,—I beg to submit to you my annual report.

I have analysed during the year ending 30th June, 1894, one hundred and twenty-seven samples, as exhibited on the following table:

Samples.	Adulterated	Doubtful.	Genuine.	Total.
Cocoa and chocolate.....	5	3	4	12
Milk.....	3	2	30	35
Wine.....	6		9	15
Pepper.....	1		9	10
Mustard.....	1		4	5
Honey.....			20	20
Fertilizers.....			15	15
Butter.....	2	3	10	15
	18	8	101	127

Cocoas and Chocolates.

Of these I have examined six samples of each. Returned according to the departmental standard, one cocoa was genuine and five were adulterated, and three chocolates were genuine and three were doubtful.

It appears questionable whether the terms cocoa and chocolate are used with the strictness which is desirable, many of the samples sold as cocoas being really chocolates.

Inland Revenue—Adulteration of Food.

Milk.

I have examined thirty-five samples of milk. Of these thirty were reported genuine, three adulterated by admixture with water and two returned doubtful.

Wine.

Fifteen samples of wine were examined with a view to the presence of alcohol and sugar, other than that contained in the grape juice, or obtained from it by fermentation. Three samples were reported as showing evidence of the addition of alcohol, and four of the addition of foreign sugar.

Pepper.

Ten samples were examined, nine were reported genuine, and one adulterated. The adulterated specimen contained calcium sulphate.

Mustard.

Five samples were examined. One of these was genuine mustard; the others were mixtures of mustard with flour. If one-third flour is allowed, one sample fell below this standard, giving one out of five as adulterated.

Honey.

Twenty samples of honey were examined. I did not feel justified from the results of the analyses in reporting any of them as adulterated.

Fertilizers.

Fifteen samples were examined. None were condemned as falling below the prescribed standards.

Butter.

I have examined fifteen samples of butter. Of these fifteen samples I have reported two samples adulterated with foreign fat and three others I reported as of doubtful purity.

These results would appear to indicate that the use of oleomargarine as substitute for butter without acknowledgment is spreading in my district.

I have the honour to be, sir,
Your obedient servant,

W. H. ELLIS.

OFFICE OF THE PUBLIC ANALYST,
LONDON, 5th July, 1894.

To the Commissioner of Inland Revenue,
Ottawa.

SIR,—I have the honour to submit to you my report for the year ending 30th June, 1894. During the year I have received and analysed 128 samples, as follows:—

Article.	Pure.	Doubtful or below stand- ard.	Adulterated	Total.
Chocolate.....	3	1		4
Cocoa.....	5			5
Milk.....	37	21	4	62
Wine.....	2		10	12
Mustard.....			4	4
Black pepper.....	3	1		4
White pepper.....	3		1	4
Tea.....	4	2	3	9
Fertilizers.....	11			11
Butter.....	11		2	13
	79	25	24	128

With reference to the classification of the above, I may say that all the cocoas, except one, contained starch; and three of them contained sugar, in one instance over 40 per cent sugar. As I do not know that they were represented as being composed of pure cocoa, and as some of them stated on the label that starch and sugar were added, I did not return them as being adulterated. Possibly few materials offer more favourable conditions for adulteration than cocoa, under the head of "soluble cocoa," "prepared cocoa," &c., and as a fact is very frequently largely diluted.

With reference to the milks, I may say that all coming under the standard of 3.50 per cent of fat and 8.50 of solids not fat, and which I could not say positively were adulterated, I placed in the class of doubtful or below standard; some of these, I have no doubt, are not adulterated, but simply an inferior quality, while others are probably slightly adulterated. It would appear to me to be highly desirable to adopt the standard for milk as for other articles of food, recommended by the chief analyst, in his report of November, 1891. The standard I took for wine was that pure wine should contain only the fermented juice of the grape.

The mustards were all very badly adulterated, the adulterant in each case being wheat flour. Only one of the samples of pepper I found to be adulterated, which shows a very decided improvement on past reports of analyses made of this article, when it was the exception to find one pure.

I have the honour to be, sir,

Your obedient servant,

FRANKLIN T. HARRISON.

Inland Revenue—Adulteration of Food.

ST. JOHN'S COLLEGE, WINNIPEG, 26th July, 1894.

The Commissioner of Inland Revenue,
Ottawa.

SIR,—I have the honour to present a tabulated statement showing the results of the analysis of samples submitted to me during the year ended 30th June, 1894.

—	Genuine.	Adulterated	Unclassed.	Total.
Cocoa and chocolate.....			9	9
Milk.....	44	8		52
Wine.....			12	12
Mustard and pepper.....	7	5		12
Honey.....			14	14
Bees-wax.....	4			4
Fertilizers.....			12	12
Butter.....	12			12
	67	13	47	127

Many of the samples I have been unable to class as genuine or adulterated, as will be seen from the following considerations.

Cocoa and Chocolate.—The samples consisted mostly of cocoa with various proportions of starch or of starch and sugar. The cocoa preparations were in packages which stated the contents to be mixtures. In one case an added potassium compound was present, the cocoa evidently having been prepared with alkali by the so called Dutch method. As there is no law limiting the proportions of foreign substances none of the samples can be regarded as adulterated.

Wine.—Apparently there is no legal definition of the term. The methods of analysis in use throw very little light on the origin of the samples.

Honey.—With one doubtful exception, the samples were free from commercial glucose and added cane sugar. As far as I know there is no method of detecting “invert” sugar when added to honey.

Fertilizers.—The samples all came within the legal definition of a fertilizer, but the guaranteed proportions of the essential ingredients being unknown to the analyst at the time of the examination no comparison with the amounts actually present are possible. I would suggest that in order to avoid some of the numerous mistakes which occur in the annual food reports, that proofs of the tables of analytical results and of the annual reports of the district analysts be sent to the respective writers for correction.

I have the honour, &c.,

EDGAR B. KENRICK.

APPENDIX A.—INSPECTION OF

Date of Collection.	Description of Sample and Manufacturers' Name, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.								
				Moisture.	Fat.	Extracted alcohol.	Insoluble in alcohol.	Ash.				
								Total.	Insoluble in water.	Insoluble in acid.	Phosphoric acid.	
				p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
1893.	<i>Analyst, W. F. Best, St. John, N.B.</i>											
Aug. 25	Bensdorp's Royal Dutch.....	5717	6401	5.25	33.60			10.20	2.85			
do 25	Fry's.....	5718	6402	7.25	31.84			9.50	2.95			
do 25	Van Houten's Pure Soluble.....	5719	6403	5.15	30.50			13.10	2.80			
do 28	Mott's Breakfast.....	5720	6404	7.25	27.95			5.95	3.20			
do 28	Baker & Co.'s Breakfast.....	5721	6405	4.25	28.90			6.05	3.25			
	<i>Analyst, Dr. J. B. Edwards, Montreal.</i>											
July 19	Baker's Breakfast.....	5401	11950	5.00	25.65	11.90	57.45	5.4				
do 20	J. Webb's Homœopathic.....	5403	11952	5.88	9.33	34.17	50.62	3.5				
do 20	Fry's Homœopathic.....	5406	11955	4.40	14.72	37.51	43.37	2.4				
do 20	Epps' Prepared.....	5402	11956	5.1	25.13	29.36	40.41	1.7				
Aug. 7	Van Houten's Pure Soluble.....	5410	11959	5.12	27.72	11.15	56.01	9.2				
do 7	P. Mott & Co.'s, Halifax, N.S.	5411	11960	8.74	12.21	16.97	62.08	5.7				
do 8	Bensdorp's Pure Soluble.....	5414	11963	5.35	29.66	11.50	53.59	7.4				
	<i>Analyst, Dr. F. X. Valade, Ottawa.</i>											
July 19	Epps & Co.'s.....	7144	5972	4.78	25.22	70.00		1.72	0.80	0.00		
do 20	Todhunter & Mitchell's, Toronto.	7147	5975	5.89	11.17	82.94		2.54	1.44	0.14		
do 20	Epps & Co.'s, England.....	7148	5976	5.08	24.92	70.01		1.54	0.74	0.0		
do 21	W. Baker & Co., Mass.....	7150	5978	3.36	26.92	69.72		5.30	3.08	0.10		
do 21	Epps & Co.'s.....	7152	5980	5.23	25.10	69.67		1.62	0.76	0.02		
	<i>Analyst, Dr. W. H. Ellis, Toronto.</i>											
do 25	Cadbury's, England.....	4796	5981	5.05	25.22			4.65	2.90			
do 25	Ellis & Keighley, Toronto....	4798	5983	3.45	12.00			1.60	0.92			
do 25	Todhunter & Mitchell, Toronto	4800	5985	3.25	17.70			1.32	0.57			
do 25	Purchased in bulk.....	4802	5987	3.62	12.75			1.67	1.05			
do 25	Cowan's, Toronto.....	4803	5988	3.65	11.80			2.05	1.20			
do 25	do do.....	4805	5990	4.10	12.85			2.05	1.20			
	<i>Analyst, F. T. Harrison, London, Ont.</i>											
do 26	Epps & Co.'s.....	6277	12535	5.4	26.0			1.65	.85	.05	.514	
do 27	Todhunter, Mitchell & Co....	6280	12538	4.3	20.7			1.7	.45	.02	.440	
do 27	do.....	6281	12539	3.5	23.6			1.95	1.00	.15	.514	
do 27	Bensdorp's, Amsterdam.....	6282	12540	4.8	31.6			6.5	2.5	.05		
do 27	Cowan & Co.'s, Toronto.....	6283	12541	5.9	24.5			4.4	2.9	.4		

Inland Revenue—Adulteration of Food.

COCOA—Tabulated Statement.

Sugar.		Reducing sugar.		PROPERTIES OF THE FAT.		Vendor.	Residence.	Analyst's Observations.
p. c.	p. c.	Iodine absorbed.	Potash for saponification.	p. c.	p. c.			
0·00						Jardine & Co.	St. John, N.B.	No foreign vegetable matter detected; not adulterated.
0·00						G. Robertson & Co.	do	do
0·00						Puddington & Merritt	do	do
0·00						Rankine & Moulson.	do	do
0·00						McPherson Bros.	do	do
				19·0		Fraser Bros.	Montreal	Unadulterated under Act.
				18·8		F. J. Dundee.	do	do
				14·1		A. Chabot	do	do
				19·2		do	do	do
				19·3		T. Parent.	Quebec	do
				19·5		Croteau Frère et Cie.	do	do
				19·5		G. B. Côté.	do	do
25·88	Trace.					Stewart Bros.	Renfrew, Ont.	Not genuine but a fair product; starch present.
29·95	1·91					J. B. Kemp.	Pembroke, Ont.	Not genuine and bad; contains much starch.
26·12	1·09					O'Meara & H. we	do	Not genuine but fair; contains much starch.
2·85	0·62					— Rochon	Ottawa.	Very good product; no starch.
25·49	2·45					F. Motte.	do	Not genuine but fair; starch present.
14·70						J. L. Grant & Co.	Toronto	Pure cocoa from which about two-thirds of the fat has been removed.
51·10						M. Somerville	do	A mixture of about 38 p. c. cocoa, 47 p. c. sugar, and 15 p. c. corn starch; some of the fat has been removed.
49·20						W. Mackarrow	do	A mixture of about 40 p. c. cocoa, 46 p. c. sugar, and 14 p. c. corn starch.
57·65						Millmann & Nellis.	Woodstock, Ont.	A mixture of about 41 p. c. cocoa, 55 p. c. sugar, and 4 p. c. corn starch; some fat has been removed.
50·60						Thornton & Son	do	A mixture of about 47 p. c. cocoa, 46 p. c. sugar, and 7 p. c. corn starch; some of the fat has been removed.
43·95						E. Morrish	Galt, Ont.	A mixture of about 47 p. c. cocoa, 39 p. c. sugar, and 14 p. c. corn starch; some of the fat has been removed.
24·4	None	34·21	19·8			F. W. Fotheringham	Palmerston, Ont.	Arrowroot starch present; the fat by Björklund's ether test indicates pure cocoa butter.
40·5	Some	37·2	19·8			J. Holloway	Harriston, Ont.	Shows corn starch; fat by Björklund's test of doubtful purity.
36·0	do	34·4	19·9			J. Sanders.	do	Corn starch present; Björklund's test indicates pure fat.
None	None	33·3	19·96			J. Whitehead.	Walkerton	No foreign starch.
do	do	34·3	19·9			R. Marr.	do	Shows presence of corn starch.

APPENDIX A.—INSPECTION OF

Date of Collection.	Description of Sample and Manufacturers' Name, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.								
				Moisture.	Fat.	Extracted by alcohol.	Insoluble in alcohol.	Ash.				
								Total.	Insoluble in water.	Insoluble in acid.	Phosphoric acid.	
				p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
1893.	<i>Analyst, Prof. E. B. Kenrick, Winnipeg.</i>											
Aug. 7	Rowntree's, England.....	6629	12325	6·34	27·85	.....	.....	8·08	1·27	.....	.....
do 7	Mott & Co., Halifax.....	6631	12327	7·13	23·05	.....	.....	4·92	3·45	.....	.....
do 7	Todhunter, Mitchell & Co.'s..	6634	12330	5·11	19·37	.....	.....	2·00	0·71	.....	.....
do 7	Epps & Co.'s.....	6635	12331	5·78	26·35	.....	.....	1·45	0·93	.....	.....
do 7	do	6637	12333	6·00	23·56	.....	.....	1·50	0·93	.....	.....

Inland Revenue—Adulteration of Food.

COCOA—Tabulated Statement—Continued.

		PROPERTIES OF THE FAT.		Vendor.	Residence.	Analyst's Observations.
Sugar.	Reducing sugar.	Iodine absorbed.	Potash for sa- ponification.			
p. c.	p. c.	p. c.	p. c.			
None				J. G. Hargrave & Co.	Winnipeg.	Contains an added potassium compound; genuine.
do				D. McLean & Co.	do	
38·63				Wright & Wright.	do	Contains a large proportion of maize starch; genuine, being labelled "cocoa and other highly nutritious substances," the latter being corn starch and sugar.
26·42				T. Lusted & Son.	Stonewall, Man.	
25·70				S. O. Baily.	do	Genuine; containing, as stated on packet, sugar and arrowroot. do do

APPENDIX B.—INSPECTION OF

Date of Collection.	Description of Sample and Manufacturers' Name when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.									
				Moisture.	Fat.	Extracted by alcohol.	Insoluble in alcohol.	Ash.					
								Total.	Insoluble in water.	Insoluble in acid.	Phosphoric acid.		
				p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
1893.	<i>Analyst, W. F. Best, St. John, N.B.</i>												
Aug. 29	Fry & Sons, England	5722	6406	3.00	20.2					1.05	.40		
do	29 Rowntree & Co., England	5723	6407	1.75	28.0					1.50	.70		
do	29 Mott & Co., Halifax	5724	6408	5.75	36.80					3.00	1.35		
do	29 Cadbury, Paris	5725	6409	1.20	31.50					1.44	.60		
	<i>Analyst, Dr. J. B. Edwards, Montreal.</i>												
July 19	Baker & Co., Mass.	5402	11951	3.54	44.81	10.50	41.15	3.00					
do	19 Edsons, Diamond	5404	11953	2.39	24.60	55.60	17.41	2.00					
do	19 Chocolate Poulli, Poulain, France	5405	11954	1.04	21.59	60.88	16.49	1.70					
do	19 Chocolate, Menier	5408	11957	1.54	20.42	62.70	15.34	1.60					
Aug. 7	W. Thomas, Halifax	5409	11958	6.26	26.54	12.70	54.50	2.70					
do	7 Fry's Diamond	5412	11961	2.66	17.18	57.23	22.93	1.20					
do	8 C. de Gourmet, Trebacien	5413	11962	2.35	18.05	65.51	14.09	2.20					
	<i>Analyst, Dr. F. X. Valade, Ottawa.</i>												
July 19	Todhunter & Mitchell, Toronto	7145	5973	1.54	22.34	75.62		1.20	0.52	0.0			
do	19 Mott & Co., Halifax	7146	5974	2.56	20.24	77.20		2.70	0.80	0.0			
do	19 Fry & Sons, England	7149	5977	1.71	19.54	78.75		0.88	0.42	0.10			
do	21 Cowan, Toronto	7151	5979	1.75	22.67	75.58		0.94	0.44	0.04			
	<i>Analyst, Dr. W. H. Ellis, Toronto.</i>												
do	25 Todhunter & Mitchell, Toronto	4797	5982	1.30	23.85			1.42	0.77				
do	25 Mott & Co., Halifax	4799	5984	2.82	24.20			2.15	1.35				
do	25 Fry & Sons, England	4801	5986	2.20	20.30			0.97	0.57				
do	26 Menier, France	4804	5989	1.10	21.10			1.45	0.57				
do	27 Mott & Co., Halifax	4806	5991	2.85	22.15			2.30	1.30				
do	27 Cowan, Toronto	4807	5992	2.17	21.70			1.45	0.70				
	<i>Analyst, F. T. Harrison, London, Ont.</i>												
do	26 Mott & Co., Halifax	6276	12534	4.07	19.2			1.9	1.25	.15	.63		
do	26 Todhunter & Mitchell, Toronto	6278	12536	1.5	26.0			1.5	.9	.05	.63		
do	27 Fry & Sons, England	6279	12537	.45	25.0			1.0	.55	.05	.33		
do	28 Cowan, Toronto	6284	12542	.75	23.1			1.10	.75	.25	.36		

Inland Revenue—Adulteration of Food.

CHOCOLATE—Tabulated Statement.

Sugar.		PROPERTIES OF THE FAT.		Vendor.	Residence.	Analyst's Observations.
		Reducing sugar.	Iodine absorbed.				Potash for saponification.
p. c.	p. c.	p. c.	p. c.			
50·0				Hadress Clarke	St. John, N. B.	No foreign vegetable matter detected; not adulterated; contains 10 p.c. added starch.
55·0				Warden & Williams	do	do
0·0				Vanwart Bros.	do	do 5 p.c. do
50·0				W. A. Porter	do	do
		19·1		Fraser Bros.	Montreal	Unadulterated under Act.
		16·3		F. J. Durdee	do	do do
		18·1		A. Chabot	do	do do
		19·6		W. McGowan & Son	do	do do
		18·5		T. Parent	Quebec	do do
		19·4		Croteau Frere et Cie.	do	do do
		19·4		G. B. Côté	do	do do
49·91	1·18			Stewart Bros.	Renfrew, Ont.	Not genuine and of inferior quality; much starch present.
43·12	2·63			French & Gorman	do	Not genuine and below standard; much starch present.
54·53	0·80			A. Millar	Pembroke, Ont.	do do
55·95	2·54			Rochon	Ottawa	Not genuine, but fair; starch present.
59·10				J. L. Grant & Co.	Toronto	Pure; no foreign starch; a mixture of about 47 p.c. cocoa and 53 p.c. sugar.
44·50				W. Somerville	do	A very little wheat starch present; a mixture of about 60 p.c. cocoa and 40 p.c. sugar.
55·45				W. Mackarrow	do	A mixture of about 30 p.c. cocoa, 53 sugar and 17 p.c. arrowroot.
57·65				Thornton & Son	Woodstock, Ont.	A mixture of about 45 p.c. cocoa and 55 p.c. sugar; no foreign starch.
45·15				E. Morrish	Galt, Ont.	A mixture of about 60 p.c. cocoa and 40 p.c. sugar; a very little wheat starch present.
58·30				J. Struthers	do	A mixture of about 45 p.c. cocoa and 55 p.c. sugar; a very little corn starch present.
36·0	None.	34·34	19·1	D. W. Dalmage	Palmerston, Ont.	Björklund's ether test indicates fat of doubtful purity; no foreign starch recognized.
53·5	None.	36·0	19·8	J. W. Fotheringham	do	do do
63·3	None.	35·1	19·9	John Holloway	Hamilton, Ont.	Björklund's test indicates pure fat; no foreign starch recognized.
63·0	None.	34·7	19·7	V. Crofford	Walkerton, Ont.	No foreign starch.

APPENDIX B.—INSPECTION OF

Date of Collection.	Description of Sample and Manufacturers' Name when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.							
				Moisture.	Fat.	Extracted by alcohol.	Insoluble in alcohol.	Ash.			
								Total.	Insoluble in water.	Insoluble in acid.	Phosphoric acid.
				p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
1893.	<i>Analyst, Prof. E. B. Kenrick, Winnipeg.</i>										
Aug. 7	Mott & Co., Halifax.	6630	12326	7.57	29.38	.....	.....	2.60	1.62	.....	.....
do 7	Rowntree, England.	6632	12328	5.22	40.13	.....	.....	2.77	1.95	.....	.....
do 7	Fry & Sons do.	6633	12329	3.25	20.52	.....	.....	1.15	0.55	.....	.....
do 8	Rowntree do.	6636	12332	1.80	19.45	.....	.....	1.70	0.63	.....	.....

Inland Revenue—Adulteration of Food.

CHOCOLATE—Tabulated Statement—*Continued.*

		PROPERTIES OF THE FAT.		Vendor.	Residence.	Analyst's Observations.
		Reducing sugar.	Iodine absorbed.				Potash for sap- omification.
Sugar.	p. c.	p. c.	p. c.			
None.	J. G. Hargrave.....	Winnipeg.....	Contains a large proportion of wheat starch; genuine.
None.	E. Hunter & Co.....	do	Contains wheat starch; genuine.
53·33	D. W. McLean & Co	do	Contains sugar and arrowroot starch genuine.
59·05	T. Lusted & Son.....	Stonewall, Man.	Contains a large proportion of sugar and small proportion of added starch; genuine.

APPENDIX C.—INSPECTION OF FOOD, DRUGS, &c.—Tabulated Statement.
MILK.

Date of Collection.	Name of Analyst.	District.	No. of Analysts' Certificate.	No. of Sample.	RESULT OF ANALYSIS.				Vendor.	Residence.	Analyst's Observations.	
					Water.	Butter-fat.	Other Solids.	Total Solids.				Specific Gravity.
					p.c.	p.c.	p.c.	p.c.				
1893.												
Oct. 20	M. Bowman	Halifax, N.S.	7926	12732	86.57	1.55	8.88	13.43	1.0324	A. Graham	New Glasgow, N.S.	Genuine.
do	do	do	7927	12733	87.85	3.74	8.41	12.15	1.0312	D. Fraser	do	Below average in solids not fat.
do	do	do	7928	12734	87.94	3.59	8.47	12.06	1.0321	F. McDonald	do	do
do	do	do	7929	12735	87.44	3.76	8.80	12.56	1.0326	D. C. McDonald	do	Genuine.
do	do	do	7930	12736	86.24	1.69	9.07	13.76	1.0323	J. F. McKenzie	do	do
do	do	do	7931	12738	86.16	5.09	8.75	13.84	1.0308	J. Connolly	do	do
do	do	do	7932	12739	86.86	4.27	8.87	13.14	1.0320	T. Trotter	do	do
do	do	do	7933	12740	86.77	4.16	9.07	13.23	1.0329	W. Thompson	Antigonish, N.S.	do
do	do	do	7934	12741	87.99	3.98	8.03	12.01	1.0281	Ann Pescoe	do	Below average in solids not fat.
do	do	do	7935	12742	87.85	3.25	8.90	12.15	1.0328	Mrs. J. O. Brien	do	Below average in fat.
do	do	do	7936	12743	87.82	3.25	8.93	12.18	1.0326	W. G. Cunningham	do	do
do	do	do	7937	12745	86.91	4.90	8.89	13.09	1.0317	M. K. Dickson	Pictou, N.S.	Genuine.
do	do	do	7938	12746	86.73	4.34	8.93	13.27	1.0321	J. A. Gordon	do	do
do	do	do	7939	12747	87.73	3.54	8.71	12.25	1.0315	Mrs. Breen	do	do
do	do	do	7940	12748	88.17	3.49	8.34	11.83	1.0306	J. O. Grady	do	Below average in solids not fat.
do	do	do	7941	12749	87.96	3.18	8.86	12.04	1.0332	W. McKay	do	Below average in fat.
do	do	do	7942	12750	86.64	1.41	8.95	13.36	1.0315	F. McIntosh	do	Genuine.
do	do	do	7943	12751	87.69	3.62	8.69	12.31	1.0314	J. English	do	do
do	do	do	7944	12752	87.13	3.62	8.63	12.27	1.0315	G. Barnhill	Truro, N.S.	do
do	do	do	7945	12753	87.23	3.69	9.02	12.71	1.0327	I. B. Smith	do	do
do	do	do	7946	12754	87.82	3.34	8.84	12.18	1.0328	Crowe & Smith	do	Below average in fat.
do	do	do	7947	12755	87.05	3.94	9.01	12.95	1.0324	do	do	Genuine.
do	do	do	7948	12756	86.43	4.28	9.29	13.57	1.0332	H. W. Lane	do	do
do	do	do	7949	12757	87.08	4.13	8.79	12.92	1.0314	J. H. Kents	do	do
do	do	do	7950	12758	87.88	4.23	7.89	12.12	1.0277	E. Leithbridge	Dartmouth, N.S.	Watered.
do	do	do	7951	12759	86.81	4.49	8.70	13.19	1.0305	D. Tulloch	do	Genuine.
do	do	do	7952	12760	87.01	4.17	8.82	12.94	1.0318	W. Settle	do	do
do	do	do	7953	12761	86.11	4.94	8.95	13.85	1.0318	L. R. Archibald	do	do
do	do	do	7954	12762	86.14	5.81	8.05	13.86	1.0286	J. A. Fraser	do	Below average in solids not fat.
do	do	do	9755	12763	87.66	3.66	8.68	12.34	1.0316	D. A. McDonald	do	Genuine.

APPENDIX C.—INSPECTION OF FOOD, DRUGS, &c.—Tabulated Statement—Continued.
MILK.

Date of Collection.	Name of Analyst.	District.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.						Vendor.	Residence.	Analyst's Observations.
					Water.	Butter-fat.	Other Solids.	Total Solids.	Specific Gravity.	Ash.			
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.					
1893.													
Oct. 17	W. F. Best.	St. John, N. B.	5726	6410	86.96	3.28	9.76	13.04	1.0385	0.80	D. W. Pilkington	St. John, N. B.	Not-adulterated, but should probably be classed as deficient in fat.
do 17	do	do	5727	6411	86.10	4.00	9.90	13.90	1.034	0.84	J. Galbraith	do	Genuine.
do 17	do	do	5728	6412	86.56	4.00	9.44	13.44	1.033	0.74	Mrs. R. Tyrer	do	do
do 17	do	do	5729	6413	86.68	4.00	9.32	13.32	1.033	0.90	John Myers	do	do
do 17	do	do	5730	6414	86.34	4.10	9.56	13.66	1.033	0.86	G. Turnbull	do	do
do 17	do	do	5731	6415	82.92	8.28	8.80	17.08	1.028	0.73	T. Desmond	do	rich in fat.
do 17	do	do	5732	6416	85.00	5.60	9.40	15.00	1.028	0.84	Worden & Williams	do	do
do 17	do	do	5733	6417	87.64	3.80	8.54	12.34	1.0308	0.74	T. Owens	do	do
do 17	do	do	5734	6418	86.98	2.80	10.22	13.02	1.0302	0.72	J. McCauley	do	Adulterated, as the butter-fat is too low, probably not fairly sampled.
do 17	do	do	5735	6419	85.50	5.08	9.42	14.50	1.0338	0.80	W. Baxter	do	Genuine.
do 17	do	do	5736	6420	89.20	2.70	8.10	10.80	1.0297	0.74	A. E. McCauley	do	Adulterated by removal of cream.
do 17	do	do	5737	6421	85.76	7.00	7.24	14.24	1.0235	0.78	C. W. Stewart	do	Genuine.
do 17	do	do	5738	6422	86.74	3.84	9.40	13.24	1.0333	0.80	H. McKnight	do	do
do 17	do	do	5739	6423	87.98	2.52	9.50	12.00	1.0343	0.80	W. H. Stackhouse	do	Adulterated; deficient in fat.
do 17	do	do	5740	6424	84.60	6.32	9.08	15.40	1.0312	0.80	J. Kerr	do	Genuine.
do 17	do	do	5741	6425	86.69	4.30	8.81	13.31	1.0323	0.71	S. McConnell	do	do
do 17	do	do	5742	6426	87.51	2.96	9.53	12.43	1.0363	0.77	Urquhart & Harrison	do	Adulterated by removal of cream.
do 17	do	do	5743	6427	87.55	3.54	8.91	12.45	1.0343	0.69	D. H. Spragg	do	Genuine.
do 17	do	do	5744	6428	88.63	3.20	8.17	11.71	1.0312	0.61	W. Alston	do	do
do 17	do	do	5745	6429	87.13	4.10	8.77	12.87	1.0333	0.75	H. F. Sharpe	do	do
do 17	do	do	5746	6430	85.61	5.00	9.39	14.39	1.0343	0.69	S. Creighton	do	do
do 17	do	do	5747	6431	86.93	3.86	9.21	13.07	1.0353	0.73	C. H. Morrison	do	do
do 17	do	do	5748	6432	85.40	5.96	8.59	14.55	1.0312	0.65	R. R. Pachill	do	do
do 17	do	do	5749	6433	86.81	4.16	9.03	13.19	1.0333	0.51	H. McAtee	do	do
do 17	do	do	5750	6434	87.51	3.56	8.93	12.49	1.0333	0.63	Gen. Public Hospital	do	do
do 17	do	do	5751	6435	82.23	8.92	8.85	17.77	1.0302	0.65	J. H. Carrell	do	do

APPENDIX C.—INSPECTION OF FOOD, DRUGS, &c.—Tabulated Statement—Continued.

MILK.

Date of Collection.	Name of Analyst.	District.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.					Vendor.	Residence.	Analyst's Observations.
					Water.	Butter Fat.	Other Solids.	Total Solids.	Specific Gravity.			
					p.	c.	d.	p.	c.			
1893.												
Nov.	Dr. M. Fiset	Quebec.	7601	13049	87.70	3.83	8.47	12.30	1.0320	H. Desroche	Quebec.	Good.
do	do	do	7602	13050	87.88	3.60	8.52	12.12	1.0330	D. Drolet.	do	do
do	do	do	7603	13051	87.17	4.23	8.60	12.83	1.0330	Miss Carney	do	do
do	do	do	7604	13052	89.61	2.36	8.03	10.39	1.0350	O. Bourget.	do	Adulterated; addition of water.
do	do	do	7605	13053	87.73	4.35	7.92	12.27	1.0330	J. Fagny.	do	Good.
do	do	do	7606	13054	87.24	4.03	8.73	12.76	1.0323	J. Gingras.	do	do
do	do	do	7607	13055	87.06	4.69	8.25	12.94	1.0320	M. Langlois.	do	do
do	do	do	7608	13056	87.38	4.04	8.58	12.62	1.0330	J. Bumierre.	do	do
do	do	do	7609	13057	88.98	3.25	7.77	11.02	1.0294	F. Mauffette.	do	Adulterated.
do	do	do	7610	13058	86.24	4.90	8.86	13.76	1.0333	B. Guerin.	do	Good.
do	do	do	7611	13059	88.29	4.03	7.68	11.71	1.0284	J. Pouliot.	do	do
do	do	do	7612	13060	85.77	5.04	9.19	14.23	1.0343	P. Fancher.	do	do
do	do	do	7613	13061	86.41	4.74	8.85	13.59	1.0323	F. Rochette.	do	do
do	do	do	7614	13062	90.11	0.81	9.08	9.89	1.0363	F. Begin.	do	do
do	do	do	7615	13063	88.91	3.34	7.75	11.09	1.0302	A. Audette.	do	Adulterated.
do	do	do	7616	13064	87.44	3.69	8.87	12.56	1.0335	H. Gingras.	do	Part of cream removed.
do	do	do	7617	13065	86.54	4.66	8.80	13.46	1.032	P. T. Kelly.	do	Good.
do	do	do	7618	13066	87.72	3.51	8.77	12.28	1.0333	J. Tintean.	do	do
do	do	do	7619	13067	88.87	2.82	8.31	11.13	1.0332	J. Tousaint.	do	do
do	do	do	7620	13068	87.67	3.78	8.55	12.33	1.0333	P. Gihault.	do	Adulterated.
do	do	do	7621	13069	88.66	3.23	8.11	11.34	1.0302	F. Villeneuve.	do	Good.
do	do	do	7622	13070	89.26	1.60	9.15	10.75	1.0363	J. Villeneuve.	do	Adulterated.
do	do	do	7623	13071	87.73	3.66	8.61	12.27	1.0333	Mrs. Villeneuve.	do	do
do	do	do	7624	13072	86.17	4.68	9.15	13.83	1.0331	Mrs. Paradis.	do	Good.
do	do	do	7625	13073	87.04	4.15	8.81	12.96	1.0332	J. B. Renaud.	do	do
do	do	do	7626	13074	85.40	5.63	9.98	14.60	1.0323	D. Pagueau.	do	do

APPENDIX C.—INSPECTION OF FOOD, DRUGS, &c.—Tabulated Statement—Continued.

MILK.

Date of Collection.	Name of Analyst.	District.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.				Vendor.	Residence.	Analyst's Observations.	
					Water.	Butter Fat.	Other Solids.	Total Solids.				Specific Gravity.
					p. c.	p. c.	p. c.	p. c.				
1893.												
Aug. 31	Dr. J. B. Edwards	Montreal	5415	11964	87.95	4.00	8.05	12.05	1.0312	A. Cleary.	Montreal	Genuine.
do 31	do	do	5416	11965	86.72	5.21	8.07	13.28	1.0310	C. Duncan.	do	do rich milk.
do 31	do	do	5417	11966	89.28	3.66	7.06	10.72	1.0279	A. Neild	do	Rich milk, adulterated by addition of water.
do 31	do	do	5418	11967	88.27	3.96	7.77	11.73	1.0320	A. Walker.	do	Rich milk, probably diluted with water; adulteration doubtful.
do 31	do	do	5419	11968	87.99	3.97	8.04	12.01	1.0330	J. H. Deschamp.	do	Genuine.
do 31	do	do	5420	11969	88.66	3.31	8.03	11.34	1.0320	A. Hobbs.	do	do
do 31	do	do	5421	11970	88.24	3.76	8.00	11.76	1.0330	P. Vaillancourt	do	do
do 31	do	do	5422	11971	88.05	3.96	7.99	11.95	1.0320	J. A. Pigeon.	do	do
do 31	do	do	5423	11972	87.66	3.86	8.49	12.34	1.0320	J. Allan.	do	do
do 31	do	do	5424	11973	88.11	4.46	7.43	11.89	1.0291	W. B. Dickson.	do	Below average in casine, but not adulterated.
do 31	do	do	5425	11974	89.01	3.23	7.76	10.90	1.031	A. Lemay	do	Probably watered; adulteration doubtful.
do 31	do	do	5426	11975	89.41	3.71	6.88	10.59	1.028	L. Beaudoin.	do	Adulterated by addition of 10 to 12 per cent of water.
do 31	do	do	5427	11976	89.55	3.82	6.63	10.45	1.0262	J. Cardinal.	do	Adulterated by addition of 15 to 20 per cent of water.
do 31	do	do	5428	11977	87.96	3.85	8.19	12.04	1.0322	J. Verners.	do	Genuine.
do 31	do	do	5429	11978	90.76	2.41	6.83	9.24	1.0277	A. Boileau.	do	Adulterated by addition of from 20 to 25 per cent of water.
do 31	do	do	5430	11979	87.88	3.75	8.37	12.12	1.0332	T. St. Pierre.	do	Genuine.
do 31	do	do	5431	11980	88.34	3.53	8.13	11.66	1.0312	J. Laplante.	do	do
do 31	do	do	5432	11981	89.06	2.71	8.23	10.94	1.0322	L. Juneau.	do	Adulterated by removal of cream.
do 31	do	do	5433	11982	87.10	4.39	8.51	12.90	1.0322	E. Lapointe	do	Genuine.
do 31	do	do	5434	11983	87.49	4.18	8.33	12.51	1.0312	H. Morel	do	do
do 31	do	do	5435	11984	86.88	4.20	8.95	13.15	1.0332	D. Rouse	do	do
do 31	do	do	5436	11985	87.71	3.94	8.35	12.29	1.0312	A. Beaulieu	do	do
do 31	do	do	5437	11986	88.54	3.80	8.16	11.46	1.0312	F. Deguire	do	do

APPENDIX C.—INSPECTION OF FOOD, DRUGS, &c.—Tabulated Statement—Continued.

MILK.

Date of Collection.	Name of Analyst.	District.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.					Vendor.	Residence.	Analyst's Observations.
					Water.	Butter Fat.	Other Solids.	Total Solids.	Specific Gravity.			
					p. c.	p. c.	p. c.	p. c.	p. c.			
1893.												
Oct. 17	Dr. J. B. Edwards	Montreal.	5482	13032	87.28	3.66	9.06	12.72	1.0340	J. Mathieu	St. Hyacinthe.	Genuine.
do 17	do	do	5483	13033	86.39	4.56	9.05	13.61	1.0335	H. Taché	do	do
do 18	do	do	5484	13034	88.14	4.24	7.62	11.86	1.0288	W. Allard	St. Henri.	Rich milk adulterated; probably with about 10 per cent water.
do 18	do	do	5485	13035	87.36	4.10	8.55	12.65	1.0316	F. X. St. Denis	do	Rich milk; probably diluted with about 10 per cent water.
do 18	do	do	5486	13036	88.50	3.90	7.60	11.50	1.0288	Mrs. J. Labreche	do	do
do 18	do	do	5487	13037	87.37	3.99	8.64	12.63	1.0314	W. Hay	do	Genuine.
do 19	do	do	5488	13038	86.73	4.89	8.38	13.27	1.0294	O. Mondoux	Hull, Que.	Rich milk.
do 19	do	do	5489	13039	87.14	4.07	8.79	12.86	1.0319	J. Marion	do	Genuine; rich quality.
do 19	do	do	5490	13040	85.79	5.22	8.99	14.21	1.0314	M. Guinette	do	do
do 19	do	do	5491	13041	87.72	4.15	8.13	12.28	1.0314	J. Renaud	do	Genuine.
do 19	do	do	5492	13042	87.39	4.65	7.96	12.61	1.0294	T. Labelle	do	do
do 21	do	do	5493	13043	87.35	4.18	8.47	12.65	1.0306	S. Noël	St. Laurent, Ont	do
do 21	do	do	5494	13044	88.40	3.62	7.98	11.60	1.0317	E. Boileau	do	do
do 21	do	do	5495	13045	87.36	3.96	8.66	12.62	1.0317	J. Corbeil	St. Leonard.	do
do 21	do	do	5496	13046	88.61	3.32	8.07	11.39	1.0306	J. Archambault	Montreal.	do
do 21	do	do	5497	13047	90.55	0.84	8.61	9.45	1.0342	D. Ruell	do	Adulterated by removal of 10 per cent cream.
do 21	do	do	5498	13048	88.27	3.46	8.27	11.73	1.0296	J. Leonard	do	Genuine.
Sept. 13	Dr. F. X. Valade	Ottawa.	7153	12949	87.79	4.15	8.06	12.21	1.0316	A. Kennedy	Ottawa.	Genuine.
do 13	do	do	7154	12950	87.09	3.91	9.00	12.91	1.0359	E. Chugg	do	do
do 13	do	do	7155	12951	86.50	4.76	8.74	13.50	1.0333	R. Bayne	do	do
do 13	do	do	7156	12952	87.60	4.18	8.32	12.50	1.0332	A. Christie	do	do
do 13	do	do	7157	12953	87.68	4.17	8.15	12.32	1.0323	Ball Bros.	do	do
do 13	do	do	7158	12954	86.67	4.35	8.98	13.33	1.0341	R. Massee	do	do
do 14	do	do	7159	12955	82.88	9.39	7.73	17.12	1.0265	W. L. Scott	do	Partly cream.
do 14	do	do	7160	12956	85.79	5.11	8.92	14.03	1.0369	H. B. Billings	do	Genuine.
do 14	do	do	7161	12957	86.36	4.75	8.89	13.64	1.0358	J. White	do	do

APPENDIX C.—INSPECTION OF FOOD, DRUGS, &c.—Tabulated Statement—Continued.

MILK.

Date of Collection.	Name of Analyst.	District.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.				Vendor.	Residence.	Analyst's Observations.
					Water.	Butter-fat.	Other Solids.	Total Solids.			
					P. c.	P. c.	P. c.	P. c.			
1893.											
Oct. 17	D. W. H. Ellis	Toronto	4808	13616	86.21	4.57	9.22	13.79	R. B. Burkell	Toronto	Genuine.
do 17	do	do	4809	13617	87.19	3.82	8.99	12.81	T. Hellowell	do	do
do 17	do	do	4810	13618	86.65	4.02	9.33	13.35	G. O. Roache	do	do
do 17	do	do	4811	13619	88.06	3.54	8.40	11.94	J. Hanbridge	do	Poor in solids.
do 17	do	do	4812	13620	88.71	4.06	7.23	11.29	J. McMahon	do	Adulterated by admixture with water.
do 17	do	do	4813	13621	86.84	4.05	9.11	13.16	J. Ward	do	Genuine.
do 17	do	do	4814	13622	85.93	4.36	9.28	14.07	A. A. Anderson	do	do
do 17	do	do	4815	13623	86.95	3.93	9.12	13.05	J. Good	do	do
do 17	do	do	4816	13624	86.77	4.29	8.94	13.23	J. A. Keane	do	do
do 17	do	do	4817	13625	87.59	3.53	8.88	12.41	A. Stewart	do	do
do 17	do	do	4818	13626	87.31	3.61	9.08	12.69	Downey Bros.	do	do
do 17	do	do	4819	13627	86.37	4.17	9.46	13.63	W. McFarlane	do	do
do 17	do	do	4820	13628	87.54	3.48	8.98	12.46	W. Harvey	do	do
do 17	do	do	4821	13629	84.40	6.48	9.12	15.60	S. Price & Sons	do	do
do 17	do	do	4822	13630	86.76	3.88	9.36	13.24	Thos. Nolan	do	do
do 17	do	do	4823	13631	85.27	5.74	8.99	14.73	Mary Close	do	do
do 17	do	do	4824	13632	87.14	3.66	9.20	12.86	T. Prendergast	do	do
do 17	do	do	4825	13633	87.44	3.44	9.12	12.56	Butterm Bros.	Hamilton	do
do 17	do	do	4826	13634	87.54	3.33	9.13	12.46	Frank Buterum	do	do
do 17	do	do	4827	13635	89.64	2.88	7.48	10.36	John Kirton	do	Adulterated by addition of water.
do 17	do	do	4828	13636	87.20	3.96	8.84	12.80	J. McMichael	do	Genuine.
do 17	do	do	4829	13637	88.04	3.23	8.73	11.96	Farmers' Dairy Co., No. 1 wagon.	do	do
do 17	do	do	4830	13638	87.01	3.90	9.09	12.99	J. S. McDonough	do	do
do 17	do	do	4831	13639	97.25	3.58	9.27	12.85	A. Inch	do	do
do 17	do	do	4832	13640	88.53	3.00	8.47	11.47	J. Rean	do	do
do 17	do	do	4833	13641	88.53	3.11	8.94	11.54	J. Newman	do	do
do 17	do	do	4834	13642	88.86	3.35	7.79	11.14	W. Deane	do	do
do 17	do	do	4835	13643	88.53	3.25	8.22	11.47	J. O. Ryckman	do	do
do 17	do	do	4836	13644	86.87	4.01	9.12	13.13	Mrs. A. Donald	do	do
do 17	do	do	4837	13645	86.87	4.01	9.12	13.13	Mrs. A. Donald	do	do

Inland Revenue—Adulteration of Food.

Date of Collection.	Name of Analyst.	District.	No. of Analyst's Certificate.	No. of Sample.	Result of Analysis.					Vendor.	Residence.	Analyst's Observations.
					Water.	Butter Fat.	Other Solids.	Total Solids.	Specific Gravity.			
					p. c.	p. c.	p. c.	p. c.	p. c.			
do	do	do	4837	13645	87.37	3.84	8.79	12.63	Mrs. E. Wells	do	do	
do	do	do	4838	13646	87.81	3.41	8.78	12.19	J. Lee	Brantford	do	
do	do	do	4839	13647	87.10	3.87	9.03	12.90	W. H. Willis	do	do	
do	do	do	4840	13648	87.30	4.00	8.70	12.70	G. Williams & Son	do	do	
do	do	do	4841	13649	86.75	4.24	9.01	13.25	T. Brooks	do	do	
do	do	do	4842	13650	87.58	3.84	8.58	12.42	Hy. Smith	do	do	
1883.												
Sept.	F. T. Harrison	London, Ont.	6285	12543	88.13	3.23	8.64	11.87	D. Carroll	London, Ont.	Below average.	
do	do	do	6286	12544	89.38	3.54	8.08	11.62	W. J. Spettigue	do	Very low in solids.	
do	do	do	6287	12545	87.23	4.17	8.60	12.77	G. H. Summers	do	Pure and good quality.	
do	do	do	6288	12546	87.52	3.40	9.08	12.48	W. Thorburn	do	Below average in butter fat.	
do	do	do	6289	12547	88.52	3.16	8.32	11.48	John Geary	do	Below average.	
do	do	do	6290	12548	88.36	3.00	8.04	11.04	J. Hatch	do	Very poor; probably watered.	
do	do	do	6291	12549	87.48	3.56	8.96	12.52	W. Wilkinson	do	Pure and good quality.	
do	do	do	6292	12550	87.00	4.45	8.55	13.00	G. Handley	do	do	
do	do	do	6293	12551	88.86	2.59	8.55	11.14	Mrs. Ann Hackett	do	Partly skimmed or of very poor quality.	
do	do	do	6294	12552	88.40	3.09	8.51	11.60	W. J. Spettigue	do	Below average.	
do	do	do	6295	12553	87.80	3.54	8.66	12.20	J. Lindsay	St. Thomas, Ont.	Pure.	
do	do	do	6296	12554	87.55	3.84	8.61	12.45	Johnson & Gilbert	do	do	
do	do	do	6297	12555	88.17	3.60	8.23	11.83	S. Kelly	do	Below average.	
do	do	do	6298	12556	87.79	3.62	8.59	12.21	G. Kenbel	do	do	
do	do	do	6299	12557	89.71	2.14	8.15	10.29	J. Sanderson	do	Skimmed.	
do	do	do	6300	12558	88.34	3.42	8.24	11.66	F. Dunstford	do	Below average.	
do	do	do	6301	12559	87.93	3.34	8.73	12.07	F. A. Fitch	do	Below average in butter fat.	
do	do	do	6302	12560	88.86	2.92	8.22	11.14	J. W. Cannon	Ingersoll	Below average; of doubtful purity.	
do	do	do	6303	12561	88.43	3.28	8.29	11.57	J. Hooper	do	do	
do	do	do	6304	12562	87.84	3.90	8.26	12.16	R. J. Dutton	do	do	
do	do	do	6305	12563	87.69	3.40	8.91	12.31	D. A. Bucknell, jun.	London, Ont.	Below average.	
do	do	do	6306	12564	88.59	2.91	8.50	11.41	A. Windrim	do	Butter fat below average.	
do	do	do	6307	12565	88.67	3.45	7.88	11.33	A. Bruce	do	Below average.	
do	do	do	6308	12566	88.25	3.45	8.30	11.75	W. Cox	do	Adulterated by addition of water.	
do	do	do	6309	12567	89.57	3.03	7.40	10.43	C. Dobbie	do	Adulterated by addition of water.	
do	do	do	6310	12568	87.41	4.39	8.20	12.59	T. Brandon	do	Rich in butter fat.	

APPENDIX C.—INSPECTION OF FOOD, DRUGS, &c.—Tabulated Statement—Continued.
MILK.

Date of Collection.	Name of Analyst.	District.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.					Vendor.	Residence.	Analyst's Observations.
					Water.	Butter-fat.	Other Solids.	Total Solids.	Specific Gravity.			
					p. c.	p. c.	p. c.	p. c.	p. c.			
1893.												
Oct. 16	F. T. Harrison	London, Ont.	6311	12569	88.06	3.62	8.32	11.94	1.0324	W. Wier	Clinton, Ont.	Below average.
do 16	do	do	6312	12570	87.20	3.81	8.99	12.80	1.0353	Tindle Bros.	do	Genuine.
do 16	do	do	6313	12571	87.21	4.00	8.79	12.79	1.0339	P. Towers	do	do
do 17	do	do	6314	12572	87.90	3.92	8.18	12.10	1.0319	W. Bell	Goderich.	Low in solids, not fat.
do 17	do	do	6315	12573	87.73	3.83	8.44	12.27	1.0330	E. Strang	do	Genuine.
do 18	do	do	6316	12574	87.46	3.94	8.60	12.54	1.0325	J. P. Wakefield	Listowel	do
do 18	do	do	6317	12575	86.95	4.70	8.35	13.05	1.0298	J. Grant	Harriston.	do
do 19	do	do	6318	12576	87.54	3.96	8.50	12.46	1.0329	H. Noble	Walkerton	do
do 19	do	do	6319	12577	88.10	3.52	8.38	11.90	1.0332	Mrs. Rodgerson	do	Below average.
do 20	do	do	6320	12578	86.33	5.10	8.57	13.67	1.0330	A. McPhail	Paisley, Ont.	Genuine.
do 21	do	do	6321	12579	87.63	3.91	8.44	12.35	1.0319	J. S. Wood	Mount Forest.	do
do 21	do	do	6322	12580	87.50	3.90	8.60	12.50	1.0341	Mary Calder	do	do
do 21	do	do	6323	12581	87.14	4.38	8.48	12.86	1.0319	Sarah Gregory	do	do
do 23	do	do	6324	12582	86.26	4.67	9.07	13.74	1.0341	W. Leeson	Chesley, Ont.	do
do 23	do	do	6325	12583	87.55	3.89	8.56	12.45	1.0330	W. Moore	do	do
do 23	do	do	6326	12584	88.08	3.44	8.48	11.92	1.0333	R. Millar	do	do
do 24	do	do	6327	12585	86.58	4.54	8.88	13.42	1.0337	H. Eldridge	Wiaraton, Ont.	Below average.
do 24	do	do	6328	12586	87.52	3.48	9.00	12.48	1.0348	N. Davis	do	Genuine.
do 25	do	do	6329	12587	87.67	4.08	8.25	12.33	1.0333	A. Arnold	Palmerston, Ont.	do
do 26	do	do	6330	12588	87.48	3.93	8.59	12.52	1.0333	W. Abernast	do	do
do 26	do	do	6331	12589	87.21	4.50	8.29	12.79	1.0320	J. Brown	Seaforth, Ont.	do
do 30	do	do	6332	12590	87.38	4.12	8.50	12.62	1.0329	J. Griffin	do	do
do 31	do	do	6333	12591	87.96	3.98	8.16	12.14	1.0320	T. Cardwell, jr.	Stratford, Ont.	do
do 31	do	do	6334	12592	87.01	4.14	8.85	12.99	1.0341	G. Robb, jr.	do	Low in solids not fat.
do 31	do	do	6335	12593	86.83	4.40	8.77	13.17	1.0326	D. O'Brien	do	Genuine.
do 31	do	do	6336	12594	87.86	4.18	8.46	12.64	1.0313	P. Pratt	do	do
do 31	do	do	6337	12595	88.42	3.56	8.02	11.58	1.0305	W. Low	do	do
do 31	do	do	6338	12596	87.78	3.50	8.72	12.22	1.0343	F. Short	do	Below average; probably watered.
Nov. 1	do	do	6339	12597	87.60	3.87	8.53	12.40	1.0331	W. B. Alder	do	Genuine.
do 1	do	do	6340	12598	87.80	3.40	8.80	12.20	1.0344	G. Snider	Berlin, Ont.	do

APPENDIX C.—INSPECTION OF FOOD, DRUGS, &c.—Tabulated Statement—Continued.
MILK.

Date of Collection.	Name of Analyst.	District.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.					Vendor.	Residence.	Analyst's Observations.
					Water.	Butter-fat.	Other Solids.	Total Solids.	Specific Gravity.			
					p. c.	p. c.	p. c.	p. c.	p. c.			
1893.												
Dec.	E. B. Kenrick	Winnipeg	6680	12388	86.13	4.64	9.23	13.87		R. Beale.	Broadview.	Genuine.
do	do	do	6681	12389	86.63	3.77	9.60	13.37		J. Conn.	Indian Head.	do
do	do	do	6682	12390	85.44	5.56	9.00	14.56		J. Brown.	do	do
do	do	do	6683	12391	86.30	4.54	9.16	13.70		G. Broder.	Regina.	do
do	do	do	6684	12392	86.84	3.81	9.35	13.16		J. W. Glover.	do	do
do	do	do	6685	12393	88.53	3.22	8.25	11.47		R. Ronkin.	do	Below average.
do	do	do	6686	12394	85.17	5.74	9.09	14.83		J. McPherson.	do	Genuine.
do	do	do	6687	12395	86.43	4.58	8.90	13.57		T. Watson.	do	do
do	do	do	6688	12396	90.05	3.68	6.27	9.95	1.0230	R. J. Tait.	Winnipeg.	Watered.
do	do	do	6689	12397	86.37	4.42	9.21	13.03		J. H. Elliott	do	Genuine.

Inland Revenue—Adulteration of Food.

APPENDIX D.—INSPECTION OF TINCTURES—Tabulated Statement.

Date of Collection.	Name of Tincture and Manufacturer.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.				Vendor.	Residence.	Analyst's Observations.
				Specific Gravity.	Total Solids.	Alcohol by Volume.	Alcohol by Weight.			
				p. c.	p. c.	p. c.	p. c.			
1893.	<i>Analyst, Dr. M. Fiset, Quebec.</i>									
Nov. 29.	Tincture calumba, Lyman Bros. & Co., Toronto.	7639	13113	.9356	1.012	51.52	43.90	J. E. Livernois.	Quebec	Genuine.
do 29.	do arnica flor. do	7640	13114	.9057	2.956	67.46	59.75	do	do	High in alcohol for U. S. P. standard, which requires only 45.5 per cent; genuine.
do 29.	do gentian co. do	7641	13115	.9545	3.352	46.20	38.94	do	do	Of rather low alcoholic strength; just below the limit.
do 29.	do myrrh do	7642	13116	.8553	3.128	83.48	77.56	do	do	Genuine, although barely reaching the minimum strength in alcohol.
do 29.	do ginger do	7643	13117	.8542	0.452	83.58	77.67	do	do	Genuine.
do 29.	do rhubarb do	7644	13118	.9463	3.92	50.34	42.79	do	do	do

APPENDIX E.—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF						
				Specific Gravities.		Alcohol.			In 100 c.c. Grammes.	
				Of the Wine.	Distillate.	By Weight.	By Volume.	Proof Spirit.	Total Solids.	Reducing Sugar as Dextrose.
1894.	<i>Analyst, M. Bowman, Halifax.</i>			p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
Jan. 3	Claret, from Isle St. Pierre	7973	12784	1 0064	9854	8 87	11 26	.....	2 16	.....
do 3	Port, Ontario Grape and Wine Co.	7974	12785	1 0367	9815	11 34	14 80	.....	10 71	8 16
do 4	Pale Sherry, Tobin, Halifax	7975	12786	0 9959	9789	13 75	17 26	.....	2 80	1 71
do 4	Port do	7976	12787	1 0200	9802	12 47	16 02	.....	7 99	6 66
do 5	Sherry do	7977	12788	0 9874	9769	15 59	19 40	.....	1 76	0 51
do 5	Pommard, Clarke, Bordeaux	7978	12789	0 9934	9830	10 71	13 42	.....	2 02	.....
do 5	Sauterne do	7979	12790	0 9966	9865	8 21	10 32	.....	1 90	.....
do 5	St. Julien, Champion, Bordeaux	7980	12791	0 9944	9868	7 98	10 00	.....	1 46	.....
do 6	Chablis do do	7981	12792	0 9940	9854	8 98	11 26	.....	1 65	.....
do 6	St. Estephe, de Pontaud, Bordeaux	7981	12793	0 9959	9856	8 84	11 10	.....	1 99	.....
do 8	Bataillay, Barton, Bordeaux	7982	12794	0 9966	9872	7 73	9 70	.....	1 82	.....
do 8	French Port do	7984	12795	1 0074	9754	16 37	20 76	.....	6 02	6 06
do 8	Medoc do	7985	12796	0 9964	9863	8 34	10 48	.....	1 96	.....
do 9	Beaume, Calvet, Beaume	7986	12797	0 9943	9817	11 67	14 64	.....	2 53	.....
do 9	Sauterne, Barton, Bordeaux	7987	12798	0 9994	9840	9 92	12 48	.....	2 68	0 77
do 9	Steinwein, Krote, Coblenz	7988	12799	0 9925	9842	9 87	12 34	.....	1 59	.....
do 9	Chateau Florimon do	7989	12800	0 9964	9870	7 85	9 86	.....	1 93	.....
do 9	Liebfraumilch, Schultz, Frankfort	7990	14201	0 9977	9863	8 33	10 48	.....	2 18	0 15
1893.	<i>Analyst, W. F. Best, St. John, N.B.</i>									
Nov. 17	Sauterne, Calvet, Bordeaux	5752	6436	9 999	.....	9 50	11 79	.....	2 83	0 83
do 17	Champagne, Mumms extra	5753	6437	1 011	.....	9 71	12 05	.....	6 4	3 87
do 17	Nierstein	5754	6438	0 996	.....	7 93	9 86	.....	1 45	0 0
do 17	Claret (Margaux), Johnston, Bordeaux	5755	6439	0 997	.....	7 93	9 86	.....	1 75	0 63
do 17	Sauterne, Hanappier, Bordeaux	5756	6440	1 00	.....	7 93	9 86	.....	3 10	0 50
do 17	Medoc, Paschie, Cognac	5757	6441	0 996	.....	9 36	11 51	.....	1 67	0 45
do 17	St. Augustine, Pelee Island Wine Co. (native)	5758	6442	1 029	.....	11 62	14 37	.....	11 31	10 0
do 17	Catawba (sweet) Pelee Island Wine Co.	5759	6443	1 034	.....	10 85	13 43	.....	12 12	11 63
do 17	Catawba (native), Niagara Falls Wine Co.	5760	6444	1 031	.....	13 15	16 24	.....	12 15	11 11
do 17	Concord (native) Niagara Falls Wine Co.	5761	6445	1 020	.....	13 92	17 17	.....	9 13	7 14
do 17	Native Wine, Ontario Wine Co. (dark red)	5762	6446	1 051	.....	13 15	16 24	.....	16 93	16 66
do 17	Champagne, Mumm, Reims	5763	6447	1 004	.....	11 62	14 37	.....	4 95	3 57
	<i>Analyst, Dr. M. Fiset, Quebec.</i>									
do 28	St. Estephe de Pontaud, Bordeaux	7627	13101	0 9971	.....	7 13	8 88	.....	2 20	.....
do 28	St. Julien, Johnston, Bordeaux	7628	13102	0 9968	.....	7 80	9 70	.....	1 94	.....
do 28	Native, Tournier, Sandwich, O.	7629	13103	1 0387	.....	12 08	14 93	.....	11 65	9 60
do 28	Sauternes	7630	13104	0 9999	.....	7 87	9 78	.....	2 52	0 53
do 28	St. Julien	7631	13105	0 9966	.....	6 57	8 18	.....	1 55	0 18

Inland Revenue—Adulteration of Food.

WINES—Tabulated Statement.

ANALYSIS.					Vendor.	Residence.	Analyst's Observations.
Polarization.	Acidity ; Grammes in 100 c.c.			Ash ; Grammes in 100 c.c.			
	Total as Tar-taric Acid.	Fixed as Tar-taric Acid.	Volatile as Acetic Acid.				
p. c.							
- 0·20	0·43	0·20			J. R. Siteman	Halifax, N.S.	Unadulterated.
- 7·35	0·24	0·31			D. Johnston	do	Doubtful.
- 1·55	0·24	0·15			A. J. Finlay	do	do
- 4·10	0·34	0·11			R. T. Forristal	do	do
- 0·40	0·27	0·11			F. J. Courtney	do	Unadulterated.
- 0·05	0·35	0·10			Kelly & Glassie	do	do
0·00	0·51	0·15			do	do	do
0·00	0·26	0·20			C. Au Coin	do	do
- 0·20	0·42	0·11			A. McDougall & Son.	do	do
- 0·25	0·35	0·18			do	do	do
- 1·10	0·35	0·19			Dillon Bros.	do	do
- 6·25	0·31	0·10			J. Scott & Co.	do	Doubtful.
0·00	0·37	0·21			do	do	Unadulterated.
- 0·20	0·35	0·17			L. J. Hesslein	do	Doubtful.
- 0·95	0·47	0·17			do	do	do
- 0·05	0·40	0·17			do	do	Unadulterated.
- 0·10	0·42	0·20			do	do	do
+ 0·20	0·51	0·18			do	do	do
- 0·3			0·27		W. A. Finn	St. John, N.B.	Not adulterated ; no evidence of foreign sugar or alcohol.
- 1·50			0·1		J. Horn & Co.	do	Not adulterated ; but contains foreign sugar.
0·00			0·23		T. Furlong	do	Not adulterated ; no evidence of foreign alcohol.
- 0·10			0·22		T. J. Cronan	do	Not adulterated ; no foreign alcohol or sugar.
- 0·20			0·22		do	do	Not adulterated ; no foreign alcohol or sugar.
- 0·20			0·24		T. W. Bell	do	Not adulterated ; no foreign alcohol or sugar.
- 2·5			0·10		E. G. Scovil	do	Not adulterated ; evidence of added sugar.
- 4·0			0·15		do	do	Not adulterated ; evidence of excessive sugar.
- 5·5			0·10		F. Smith	do	Not adulterated ; evidence of excessive sugar and alcohol.
- 5·5			0·14		do	do	Not adulterated ; evidence of excessive sugar and alcohol.
- 5·2			0·28		J. Ward	do	Not adulterated ; evidence of excessive sugar and alcohol.
- 1·5			0·10		E. H. Conroy	do	Not adulterated ; excessive sugar and probably alcohol.
	0·655	0·253			H. Beautyey	Quebec	Alcohol rather deficient.
	0·582	0·187			do	do	do
	0·060	0·144			L. N. Bergeron	do	Fixed acids, total solids, specific gravity and sugar all so high that I suspect addition of foreign alcohol and perhaps sugar and tartaric acid.
	0·495	0·156			do	do	Good.
	0·525	0·252			H. A. Paré	do	Slightly deficient in alcohol.

APPENDIX E.—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF						
				Specific Gravities.		Alcohol.			In 100 c.c. Grammes.	
				Of the Wine.	Distillate.	By Weight.	By Volume.	Proof Spirit.	Total Solids.	Reducing Sugars as Dextrose.
1893.	<i>Analyst, Dr. M. Fisct, Quebec—Con.</i>					p. c.	p. c.	p. c.		
Nov. 28	Sauternes, Vigneau, Bordeaux	7632	13106	0.9984	8.57	10.65	.....	2.40	0.71
do 28	Native, Ontario Wine Co., St. Catharines.	7633	13107	1.002	13.35	16.24	.....	4.49	2.20
do 24	St. Estephe de Pontaud, Bordeaux..	7634	13108	0.9949	9.07	11.26	.....	2.00	0.14
do 28	Sauternes, Lanoire, Bordeaux	7635	13109	1.0079	10.77	13.34	.....	4.74	2.83
do 28	Graves, Johnston, Bordeaux	7636	13110	0.9968	7.60	9.45	.....	1.81	0.30
do 28	Madère, Lacaux, Limoges	7637	13111	1.0019	14.82	18.25	.....	4.47	3.65
do 28	Medoc Vieux	7638	13112	0.9966	7.93	9.86	.....	2.00	0.12
	<i>Analyst, Dr. J. B. Edwards, Montreal.</i>									
do 17	Medoc	5501	13075	.9937	9.43	10.70	.....	2.22	traces
do 17	St. Julien, Brisson, Bordeaux	5502	13076	.9957	7.33	9.13	.....	2.29	do
do 17	St. Estephe, Courtillion, Bordeaux	5503	13077	.9953	8.00	9.95	.....	1.89	do
do 17	Medoc	5504	13078	.9952	8.35	10.38	.....	1.10	do
do 21	Port, bottled by vendor	5505	13079	1.0160	13.23	16.33	.....	9.66	.....
do 21	Sherry do	5507	13080	.9954	14.00	17.26	.....	4.16	.....
do 21	Port do	5506	13081	1.0104	6.64	8.27	.....	4.84	.....
do 21	Sherry do	5508	13082	.9898	13.23	16.23	.....	2.79	.....
do 21	Native (red) Ontario Wine Co., St. Catharines.	5509	13083	1.0520	9.79	12.14	.....	17.58	.....
do 21	Port	5510	13084	1.0055	16.00	19.90	.....	7.53	.....
do 21	Sherry	5511	13085	.9933	14.00	17.26	.....	5.75	.....
do 24	Sauternes, Lanoire, Bordeaux	5513	13086	.9974	6.90	8.70	.....	1.86	.....
do 24	Native	5514	13087	1.0354	5.94	7.40	.....	9.25	.....
do 24	Native Port, Hamilton, Brantford..	5515	13088	1.0419	10.53	13.05	.....	12.35	.....
do 24	Sauternes, Barton, Bordeaux	5516	13089	.9848	10.73	13.35	.....	2.55	.....
do 24	Sherry	5512	13090	.9945	14.91	18.36	.....	4.01	.....
do 24	Native, Emery, St. Roch de Richelieu	5517	13091	1.0281	11.69	14.46	.....	11.81	.....
	<i>Analyst, Dr. F. X. Valade, Ottawa.</i>									
Nov. 16	St. Julien, Barton, Bordeaux	7205	13662	0.9965	0.9868	8.03	10.99	17.51	1.96	0.294
do 16	Sauternes do	7206	13663	0.0095	0.9855	9.035	11.215	19.65	2.60	1.218
do 16	Nierstein, Deinhard, Germany	7207	13664	0.9959	0.9863	8.43	10.47	18.35	1.835	0.840
do 16	Moselle do	7208	13665	1.0125	0.9848	9.50	11.79	20.65	5.615	4.530
do 16	Liebfravmilch do	7209	13666	0.997	0.9860	8.67	10.77	18.885	2.35	0.218
do 16	Claret (native), Pelee Island Co.	7210	13667	1.0397	0.9838	10.27	12.72	22.30	11.70	1.215
do 16	Catawba, Pelee Island Co.	7211	13668	1.0268	0.9816	12.00	14.84	26.00	9.28	8.640
do 16	do do	7212	13669	1.0256	0.9803	12.92	15.96	27.97	9.47	9.350
do 16	Claret (native) do	7213	13670	1.0398	0.9837	10.31	12.77	22.38	11.75	10.940

Inland Revenue—Adulteration of Food.

WINES—Tabulated Statement—Continued.

ANALYSIS.					Vendor.	Residence.	Analyst's Observations.
Polarization.	Acidity ; Grammes in 100 c.c.			Ash ; Grammes in 100 c.c.			
	Total as Tar-taric Acid.	Fixed as Tar-taric Acid.	Volatile as Acetic Acid.				
p. c.							
	0.697		0.199		M. W. Coleman	Quebec	Good.
	0.735		0.288		do	do	Specific gravity, alcohol and volatile acids rather high.
	0.705		0.228		J. McCove	do	Rather much volatile acids.
	0.630		0.207		A. Greniex	do	Alcohol and sugar high.
	0.690		0.207		do	do	Good.
	0.487		0.210		E. Roumilhae	do	do
	0.630		0.216		do	do	do
	.535	.488	.037	.222	L. S. Desrosier	Montreal	Unadulterated.
	.648	.505	.115	.268	A. A. Labrecque	do	do
	.470	.383	.063	.284	J. Marchand	do	do
	.822	.520	.249		M. Rodrigue & Co.	do	Unadulterated, but off grade and turning sour.
	.485	.347	.110	.248	F. Giroux	do	Adulterated under Act; extract contains glycerine and cane sugar.
	.517	.249	.213	.542	do	do	Adulteration doubtful; contains caramel and excess of alcohol.
	.258	.176	.0658	.132	T. Gauthier	do	Adulterated under Act; contains cane sugar, caramel and foreign colouring matter.
	.264	.2028	.063	.152	Levesque & Pichette	do	Adulteration doubtful; contains caramel and excess of alcohol.
	1.240	.735	.404	.586	do	do	Adulterated by addition of foreign ingredients; cane sugar, caramel, glycerine, and probably whisky.
	3.116	.197	.091	.150	M. Kilkerry	do	Adulterated and fortified with high-wines; contains sugar, caramel and alcohol in excess.
	.523	.249	.218	.230	do	do	Adulteration doubtful; contains caramel and excess of alcohol.
	.608	.273	.268	.314	P. Daoust	do	Genuine; no cane sugar.
	.520	.152	.293	.180	do	do	Adulterated; contains glycerine, glucose and caramel.
	.630	.423	.1668	.120	N. Collis & Co.	do	Adulterated.
	.570	.417	.132	.240	Murphy Bros.	do	Adulteration doubtful; traces of cane sugar.
	.411	.267	.115	.525	do	do	Adulteration doubtful; excess of alcohol.
	.882	.682	.162	.282	N. Morin & Co.	do	Adulterated.
	0.672		0.179	0.306	Bate & Co.	Ottawa	Genuine.
	0.723		0.142	0.335	do	do	do
	0.757		0.099	0.223	do	do	do
	0.817		0.144	0.166	do	do	Fair.
	0.765		0.930	0.226	do	do	Genuine.
	0.690		0.171	0.1333	do	do	Sugar added.
	0.705		0.081	0.130	do	do	do
	0.532		0.081	0.103	D. Walsh	do	do
	0.690		0.186	0.136	do	do	do

APPENDIX E.—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF						
				Specific Gravities.		Alcohol.			In 100 c.c. Grammes.	
				Of the Wine.	Distillate.	By Weight.	By Volume.	Proof Spirit.	Total Solids.	Reducing Sugars as Dextrose.
1893.	<i>Analyst, Dr. F. X. Valade—Con.</i>					p. c.	p. c.	p. c.		
Nov. 16	St. Julien, Barton, Bordeaux.....	7214	13671	0.9965	0.9868	8.07	10.03	17.58	1.96	0.270
do 16	Port.....	7215	13672	1.0116	0.9765	16.12	19.83	34.74	7.28	6.520
do 16	Sherry.....	7216	13673	0.9928	0.9762	16.35	20.10	35.23	3.17	2.380
	<i>Analyst, Dr. W. H. Ellis, Toronto.</i>									
do 28	Rhine Wine, Jeiter, Bingen.....	4843	14017	.9921	.....	11.949	14.75	.....	2.71	undet.
do 28	Hungarian, Borter, Hungary..	4844	14018	.9937	.....	9.26	11.50	.....	2.08	do
do 28	Rhine Wine, Jeiter, Bingen.....	4845	14019	.9884	.....	12.80	15.80	.....	2.076	do
do 28	Villanye, 1, Hungarian Government.	4846	14020	.9941	.....	13.06	16.15	.....	2.654	0.298
do 28	Port (native), Niagara Falls Wine Co.	4847	14021	1.0376	.....	10.09	12.50	.....	14.34	13.660
do 28	Sherry do do	4848	14022	1.0224	.....	11.42	14.15	.....	10.26	9.370
do 28	Native, Pelee Island Wine Co.....	4849	14023	1.9909	.....	9.20	11.40	.....	1.468	undet.
do 28	Nierstein, Kock, Frankfort.....	4850	14024	.9958	.....	8.53	10.63	.....	2.30	0.198
do 28	Sherry, Deinhard, Germany.....	4851	14025	.9918	.....	9.596	11.90	.....	1.844	0.125
do 28	Laubenhien (Rhine), Germany.....	4852	14026	.9963	.....	7.496	9.30	.....	2.34	0.108
do 28	Native, Cooksville Wine Co.....	4853	14027	.9932	.....	11.68	14.45	.....	7.625	5.042
do 28	Medoc, Merman, Bordeaux.....	4854	14028	.9964	.....	7.495	9.30	.....	2.182	0.158
do 28	do do	4855	14029	.9949	.....	7.983	9.90	.....	1.97	0.120
do 28	St. Julien, Bordeaux.....	4856	14030	.9970	.....	7.491	9.30	.....	3.664	0.178
do 28	Sherry (Misa), Misa, Spain.....	4857	14031	.9925	.....	15.51	19.10	.....	3.619	3.12
	<i>Analyst, F. T. Harrison, London, Ont.</i>									
do 21	Port.....	6347	14005	1.0133	.....	16.75	21.40	.....	9.24	7.18
do 21	Native, Niagara Falls Wine Co....	6348	14006	1.0533	.....	9.77	12.96	.....	16.50	11.9
do 21	Canary Island.....	6349	14007	.9952	.....	14.16	17.76	.....	3.54	1.00
do 21	Port.....	6350	14008	1.0145	.....	16.25	20.76	.....	9.16	6.57
do 21	Claret, Barton, Bordeaux.....	6351	14009	.9963	.....	7.92	9.93	.....	2.05	traces.
do 21	Native, Greening, Hamilton.....	6352	14010	1.0503	.....	11.27	14.90	.....	15.91	11.9
do 21	Teragonn.....	6353	14011	1.0105	.....	12.92	16.44	.....	6.91	4.95
do 21	Sherry.....	6354	14012	.9946	.....	13.91	17.44	.....	3.23	1.92
do 21	Sherry from Spain.....	6355	14013	.9962	.....	13.89	17.44	.....	3.56	1.87
do 21	Angelica from California.....	6356	14014	1.0326	.....	13.97	18.19	.....	12.49	10.8
do 21	Native, Pelee Island.....	6357	14015	1.0155	.....	12.10	15.48	.....	7.95	5.71
do 21	St. Julien, Barton, Bordeaux.....	6358	14016	.9969	.....	7.53	9.46	.....	1.93	none.
	<i>Analyst, Prof. E. B. Kenrick, Winnipeg, Man.</i>									
do 24	Nierstein, Deinhard, Germany.....	6690	12366	.9954	.....	7.10	.....	.....	1.74	.....
do 24	Claret, Johnston, Bordeaux.....	6691	12367	.9968	.....	8.14	.....	.....	1.96	.....
do 24	Native (red wine), Niagara Falls Wine Co.	6692	12368	1.0515	.....	9.80	.....	.....	14.85	.....
do 24	Native (white wine), Niagara Falls Wine Co.	6693	12369	1.0362	.....	8.37	.....	.....	11.29	.....
do 24	Sauternes, Barton, Bordeaux.....	6694	12370	1.0053	.....	7.81	.....	.....	3.64	.....
do 24	Claret, Johnston do	6695	12371	.9956	.....	8.58	.....	.....	2.00	.....
do 24	do Barton do	6696	12372	.9961	.....	7.89	.....	.....	1.88	.....
do 24	do do	6697	12373	.9958	.....	8.64	.....	.....	2.12	.....
do 24	Sauternes, Johnston, Bordeaux.....	6698	12374	.9964	.....	9.14	.....	.....	2.10	.....
do 24	do Labrunie do	6699	12375	.9981	.....	10.23	.....	.....	2.83	.....
do 24	Native (red wine), Niagara Falls Wine Co.	6700	12376	1.0487	.....	9.93	.....	.....	14.03	.....
do 24	Chablis.....	6701	12377	.9933	.....	8.86	.....	.....	1.64	.....

Inland Revenue—Adulteration of Food.

WINES—Tabulated Statement—Continued.

ANALYSIS.					Vendor.	Residence.	Analyst's Observations.
Polarization.	Acidity; Grammes in 100 c.c.			Ash; Grammes in 100 c.c.			
	Total as Tar- taric Acid.	Fixed as Tar- taric Acid.	Volatile as Acetic Acid.				
.....	0.644	.....	0.126	0.283	D. Walsh.....	Ottawa.....	Genuine.
.....	0.494	.....	0.072	0.186	do	do	do but sweet.
.....	0.442	.....	0.111	0.360	do	do	do
.....	0.765	.....	0.022	0.19	E. A. Wilkinson.....	Toronto	
.....	0.690	.....	0.089	0.17	152 King St. East...	do	
0 0	0.645	.....	0.048	0.188	do	do	Alcohol has been added.
0 0	0.675	.....	0.091	0.209	do	do	do do
- 27° 6'	1.005	.....	0.060	0.188	do	do	Contains foreign sugar.
- 25° 08'	0.802	.....	0.105	0.146	do	do	do do
.....	0.712	.....	0.105	0.120	Gianelli & Co.....	do	
.....	0.637	.....	0.432	0.24	16 King St. West....	do	
- 0.22°	0.585	.....	0.117	0.232	do	do	
- 0.22°	0.840	.....	0.057	0.224	do	do	
- 12° 6'	0.862	.....	0.192	0.159	N. Mara.....	do	Contains about 5 p.c. foreign
- 0° 6'	0.847	.....	0.254	0.245	79 Yonge St.....	do	sugar.
- 0.24°	0.70	.....	0.10	0.18	do	do	
- 0.48°	0.798	.....	0.124	0.464	do	do	
- 2.2°	0.510	.....	0.062	0.462	Mitchie & Co.....	do	Contains about 3 p.c. foreign
.....	.421	.310	.089	.178	John Garvey.....	London, Ont....	Fortified and has had sac-
.....	.810	.676	.107	.190	do	do	charine matter added.
.....	.718	.484	.187	.500	do	do	Sweetened.
.....	.507	.403	.083	.217	do	do	Fortified.
.....	.604	.463	.113	.301	James Wilson	do	Pure.
.....	.824	.681	.115	.143	do	do	Sweetened.
.....	.558	.365	.155	.238	do	do	Added saccharine matter, and
.....	.378	.260	.095	.362	do	do	probably alcohol.
.....	.466	.363	.083	.432	E. B. Smith.....	do	Fortified.
.....	.316	.238	.062	.155	do	do	do
.....	.704	.469	.188	.118	do	do	do and contains added sac-
.....	.680	.420	.207	.341	do	do	charine matter.
.....	.....	.....	.....	.....	do	do	Added saccharine matter.
.....	.....	.....	.....	.....	do	do	Pure.
.....	.....	.476	0.066	0.217	Richard & Co.....	Winnipeg.....	Genuine.
.....	.....	.427	0.106	0.243	do	do	do
- 5.82°	.....	.561	0.119	0.174	do	do	do
- 4.72°	.....	.456	0.069	0.130	Velie, Carey & Co ..	do	do
- 0.46°	.....	.449	0.150	0.234	do	do	do
0°	.....	.477	0.090	0.256	do	do	do
0°	.....	.422	0.085	0.249	Hudson Bay Co.	do	do
0°	.....	.409	0.120	0.278	do	do	do
+ 0.06°	.....	.435	0.124	0.251	do	do	do
- 0.23°	.....	.394	0.183	0.260	G. F. & G. Galt.....	do	do
- 6.46°	.....	.553	0.095	0.158	do	do	do
0°	.....	.430	0.096	0.185	A. Colquhon.....	do	do

APPENDIX F.—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.									
				Moisture.	Ash.				Sulphur.	Nitrogen.	Oil.		
					Total.	Soluble in water.	Soluble in hydrochloric acid.	Insoluble in hydrochloric acid.			Total.	Fixed.	Volatile.
1894.	<i>Analyst, W. F. Best, St. John, N.B.</i>			p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
Jan. 4	Mixture, Colman, London, Eng.	5772	6456	5.10	3.90							30.00	
do 4	do	5773	6457	6.68	9.55							12.00	
do 4	do	5774	6458	7.96	5.64							21.25	
do 4	do	5775	6459	9.60	3.94							11.30	
	<i>Analyst, Dr. M. Fiset, Quebec.</i>												
do 3		7662	13120	6.42	4.97	1.34	3.42	0.21	1.30			17.25	
do 4		7663	13121	6.34	4.06	0.97	2.95	0.14	1.07			17.40	
do 4		7664	13127	6.10	5.06	1.82	2.98	0.26	1.14			17.85	
do 4		7665	13130	5.98	5.40	2.74	2.50	0.16	1.32			19.95	
do 4	Compound, Colman	7666	13131	6.02	4.36	1.92	2.33	0.11	1.24			18.10	
do 4	do	7667	13132	5.68	5.11	2.15	2.80	0.16	1.17			16.35	
	<i>Analyst, Dr. J. B. Edwards, Montreal.</i>												
do 11		5528	13145	6.15	5.00	0.80						6.76	
do 11	Compound, Keene, Eng	5529	13146	6.00	3.35							17.65	
do 11	do	5530	13147	5.65	3.20							18.33	
do 11		5531	13148	4.85	8.25	1.25		2.00				20.59	
do 11	Compound, Keene, Eng	5532	13149	5.80	3.35							18.09	
do 11	do	5533	13150	6.40	2.90							4.74	
do 11		5534	13151	7.55	2.30							4.05	
	<i>Analyst, Dr. F. X. Valade, Ottawa.</i>												
do 30		7225	13682	7.15	3.20	0.75	2.20	0.25	Organic only.			17.32	
do 30	Ewing, Montreal	7226	13683	8.67	4.00	0.35	3.65		do			8.05	
do 30	do	7227	13684	7.55	2.85	0.20	2.55	0.10	do			7.57	
do 30	Compound, Ewing, Montreal.	7228	13685	7.72	2.50	0.50	2.00		do			5.75	
	<i>Analyst, Dr. W. H. Ellis, Toronto.</i>												
do 18	Compound, Keene, Eng	4868	13696	5.30	3.400	0.575				2.268	21.27	20.35	0.925
do 18	D. S. F. do	4869	13697	4.60	4.325	1.025				0.640	35.914	35.078	0.836
do 18	Compound, Todhunter, Toronto.	4870	13698	5.95	2.650	0.250				3.024	7.876	7.433	0.443

Inland Revenue—Adulteration of Food.

MUSTARD—Tabulated Statement.

Alcoholic Extract.	Probable Quantity of Mustard.	Vendor.	Residence.	Foreign Substances observed by Microscopical Examination.	Analyst's Observations.
p. c.	p. c.				
.....	.....	C. & E. Macmichael	St. John, N.B.	Colour and flour.....	Adulterated by addition of flour.
.....	.....	Robertson & Co...	do ..	Colour, flour, maize	do flour and maize.
.....	.....	G. M. Barker.....	do ..	Turmeric and flour	Adulterated; marked mixture.
.....	.....	C. D. Trueman	do ..	do	do do
17·35	.....	J. B. Lelièvre.....	Quebec.....	Much wheat starch, turmeric.	Adulterated.
17·10	.....	U. Binet	do	do ..	do
15·90	.....	O. Gagnon.....	do	Wheat starch and turmeric.	do
19·25	.....	J. E. Blais	do	do ..	do
16·70	.....	N. Chouinard.....	do	do ..	Marked compound.
17·85	.....	U. Rhéaume.....	do	do ..	do
.....	75·00	Gardner & Rhodes.	Montreal.....	Turmeric, cayenne, wheat starch, maize.	Adulterated; unfit for medicinal use.
.....	80·00	Currie Bros.....	do	Turmeric and pea flour..	Sold as compound; unfit for medicinal use.
.....	85·00	D. McGowan & Son	do	do wheat and corn flour.	do do
.....	90·00	Bigauette et frère	do	Turmeric and wheat flour	Adulterated.
.....	85·00	S. Lyons	do	do wheat and pea flour.	do sold as compound.
.....	75·00	V. Raby.....	do	Turmeric, wheat and corn flour.	do do
.....	75·00	A. Laniel	do	do ..	Adulterated; unfit for medicinal use.
.....	52·98	Messrs. Baskerville	Ottawa.....	Wheat starch and turmeric.	Adulterated; deficient in fixed oils by about 4 per cent.
.....	24·62	S. H. Eagleson...	do	Turmeric, maize, pea and bean starch.	Adulterated; deficient in fixed oils by about 14 per cent; probably made of mustard cake and added starch.
.....	23·16	F. A. Scott.....	do	Starch and a little turmeric.	Adulterated; deficient in fixed oils by about 14·5 per cent.
.....	17·58	B. C. Rainsford ..	do	do ..	Adulterated; deficient in fixed oils by about 16½ per cent.
.....	66·66	Chas. Schmidt....	Toronto.....	Flour and turmeric.....	A mixture of mustard and one-third flour.
.....	.....	do	do	A very few grains of wheat starch.	Genuine.
.....	50·00	W. M. Mulligan..	do	Flour and turmeric	Adulterated; about half flour and part of oil removed.

APPENDIX F—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.									
				Moisture.	Ash.				Sulphur.	Nitrogen.	Oil.		
					Total.	Soluble in water.	Soluble in hydrochloric acid.	Insoluble in hydrochloric acid.			Total.	Fixed.	Volatile.
1894.	<i>Analyst, Dr. W. H. Ells, Toronto—Con.</i>			p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
Jan. 18	Hood, Toronto	4871	13699	5.40	3.970	1.150	.....	.....	2.576	3.864	9.523	7.848	1.675
do 18	Compound, Keene, Eng.	4872	13700	5.00	3.230	0.025	.....	.....	3.864	3.864	20.070	19.630	0.440
	<i>Analyst, F. T. Harrison, London, Ont.</i>												
do 18	Compound, Gorman, London, Ont.	6359	14032	7.52	3.50	0.60	2.45	.45	0.45	3.83	9.50	.....	.....
do 19	do	6360	14035	6.88	3.30	0.65	2.30	.35	0.48	3.83	9.90	.....	.....
do 19	Compound, Adams, London, Ont.	6361	14038	5.65	3.30	0.42	2.73	.15	0.75	3.66	19.23	.....	.....
do 19	Compound, Magell, London, Ont.	6362	14040	6.00	3.05	0.08	2.45	.52	0.33	3.17	9.40	.....	.....
	<i>Analyst, Prof. E. B. Kenrick, Winnipeg, Man.</i>												
do 13	Compound, Dyson, Winnipeg.	6703	12399	7.01	2.61	1.00	.....	.....	.....	.....	3.20	.....	.....
do 16	Compound, Keene, England	6707	14503	6.65	2.93	0.13	.....	.....	.....	.....	15.03	.....	.....
do 16	Compound, Thompson, Winnipeg.	6709	14505	8.14	6.90	0.75	.....	.....	.....	.....	6.73	.....	.....
do 16	Mixture, Keene, England	6711	14507	7.57	3.34	0.58	.....	.....	.....	.....	16.02	.....	.....

Inland Revenue—Adulteration of Food.

MUSTARD—Tabulated Statement—Continued.

Alcoholic Extract.	Probable Quantity of Mustard.	Vendor.	Residence.	Foreign Substances observed by Microscopical Examination.	Analyst's Observations.
p. c.	p. c.				
.....	66·66	A. G. Pearce.....	Toronto	Flour and turmeric.	Adulterated ; about one-third flour and part of oil removed.
.....	66·66	J. F. Morriott	do	do	do
8·22	40·50	Ferguson & Co... ..	London.	Much wheat flour.	Adulterated.
8·03	40·50	W. Horner	do	do	do
8·75	60·65	J. C. Frebilcock	do	do	do
6·12	30·40	T. Caudrett Bros..	do	do	do
.....	.....	T. H. Oddson.....	Selkirk	Wheat, starch and turmeric.	Adulterated with flour and turmeric.
.....	.....	Hudson Bay Co....	Portage la Prairie.	do	Contains flour and turmeric ; sold as a compound.
.....	.....	T. Jean	St. Boniface	do	Adulterated with flour and turmeric.
.....	.....	Hudson Bay Co....	Winnipeg.	do	do

APPENDIX G—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.							
				Moisture.	Ash.				Total oil.	Extract by petroleum ether.	Extract by alcohol.
					Total.	Soluble in water.	Soluble in hydrochloric acid.	Insoluble in hydrochloric acid.			
				p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
1894.	<i>Analyst, W. F. Best, St. John, N.B.</i>										
Jan. 3	Black, imported in berry	5764	6448	10·80	5·30				9·60		
do 3	do	5765	6449	10·80	5·10				6·96		
do 3	Black	5766	6450	10·50	5·06				9·15		
do 3	do	5767	6451	10·14	3·60				6·00		
do 3	White, imported in berry	5768	6452	10·10	2·64				6·40		
do 3	do Lordly, St. John	5769	6453	10·54	1·32				4·40		
do 4	do Dearborn, St. John	5770	6454	10·36	1·24				5·25		
do 4	do Ryan, St. John	5771	6455	10·00	2·20				5·65		
	<i>Analyst, Dr. M. Fiset, Quebec.</i>										
do 4	White, Boisseau, Quebec	7645	13119	10·24	2·92	0·61	1·90	0·41			
do 4	do	7648	13122	10·30	2·30	0·70	1·34	0·26			
do 4	Black, Turcotte, Quebec	7649	13123	10·32	5·66	3·08	2·03	0·55			
do 4	White	7650	13124	11·60	1·57	0·55	0·77	0·25			
do 4	do	7651	13125	10·98	2·62	0·69	1·75	0·18			
do 4	Black	7652	13126	10·16	5·89	2·83	2·30	0·76			
do 4	do	7654	13128	10·50	6·57	3·21	2·19	1·17			
do 4	White	7655	13129	9·58	3·93	1·53	1·69	0·71			
do 5	Black, N. Rioux, Quebec	7659	13133	11·70	6·11	1·93	2·85	1·33			
do 5	do	7660	13134	10·14	6·40	2·46	2·88	1·06			
	<i>Analyst, Dr. J. B. Edwards, Montreal.</i>										
do 8	White, Brosseau, Montreal	5518	13135	13·00	2·90	1·00	1·65	0·25		12·4	
do 8	Black do do	5519	13136	10·35	8·35	2·95	3·35	2·05		14·10	
do 8	White, Duffy do	5520	13137	11·45	3·15	0·55	2·45	0·15		9·90	
do 8	Black do do	5521	13138	10·20	4·00	2·35	1·20	0·45		10·70	
do 10	White, Laporte do	5522	13139	9·65	5·30	2·90	2·10	0·30		8·80	
do 10	Black do do	5523	13140	7·70	11·15	0·85	3·25	7·05		4·30	
do 10	White, Ewing do	5524	13141	11·05	2·25	0·45	1·50	0·30		11·80	
do 10	Black, compound, Ewing, Montreal	5525	13142	8·40	5·45	1·60	3·50	0·35		4·70	
do 11	White	5526	13143	10·55	3·25	0·75	2·20	0·30		7·60	
do 11	Black	5527	13144	8·80	4·00	2·0	1·50	0·50		8·80	

Inland Revenue—Adulteration of Food.

PEPPER—Tabulated Statement.

Vendor.	Residence.	Foreign Substances, observed by Microscopi- cal Examination.	Analyst's Observations.
Wm. Kennedy	St. John, N.B.	Less than 10 per cent bran	Adulterated by addition of a small amount of bran.
Puddington & Mer- ritt.	do ..	No admixture recognized.	Not adulterated.
M. L. Bonnell	do ..	Slight admixture of bran.	Adulterated.
Harry Clark	do ..	do	do by about 10 per cent of bran.
Pardine & Co.	do ..	No admixture noted.	Not adulterated.
Worden & Williams.	do ..	do	do
M. H. Gallagher	do ..	Slight admixture of bran.	Adulterated with 10 per cent of bran.
Rankin & Moulson..	do ..	do	Adulterated with 10 to 15 per cent of bran.
J. B. Lelièvre.	Quebec.....	No foreign starch nor tissues.	Genuine
U. Binet	do	do	do
T. C. Lefrançois	do	Some roasted cocoa shell.	Doubtful; rather coarsely ground.
do	do	No foreign starch nor tissues.	Genuine; coarsely ground.
O. Gagnon.....	do	do	Genuine.
do	do	do	do
J. E. Blais	do	No foreign starch; a little cayenne and linseed meal.	A P. D. pepper; sand high; contains sticks and dirt.
do	do	Much wheat and rice starch and red husk.	Adulterated; too yellow; sand high.
U. Rhéaume	do	No foreign tissue.	Genuine; much sand; coarsely ground.
W. Choireard.....	do	Some roasted cocoa-nut shell.	Doubtful; coarsely ground.
H. Poirier, 1,938 St. Catherine St.	Montreal.	No foreign starch	Genuine.
do ..	do ..	No foreign starch, pepper stems in excess.	do
Dufresne & Monge- genais, 257 St. Law- rence St.	do ..	Mustard husk and ground maize.	Adulterated about 10 per cent.
do ..	do ..	do do ..	do do
J. B. Bourke, 3,362 Notre Dame St.	do ..	Wheat starch and mill- ings.	do about 20 per cent.
do ..	do ..	Millings, flour and sand..	do 20 to 25 per cent.
Berthelotfrères, 3,250 Notre Dame St.	do ..	Mustard husks, millings and ground rice.	do about 20 per cent.
do ..	do ..	Maize, millings and rape seed cake.	do 20 to 25 per cent.
Vanier frères, 2,004 St. Catherine St.	do ..	Maize and wheat starch and millings.	do about 20 per cent.
do ..	do ..	Wheat flour, millings and mustard husks.	do 20 to 25 per cent.

APPENDIX G.—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.							
				Moisture.	Ash.				Total oil.	Extract by petroleum ether.	Extract by alcohol.
					Total.	Insoluble in water.	Soluble in hydrochloric acid.	Insoluble in hydrochloric acid.			
189 .	<i>Analyst, Dr. F. X. Valade, Ottawa.</i>			p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
Jan. 3.	White, Bate, Ottawa.....	7217	13674	10·7	1·75	0·25	1·35	0·15	.....	.....	18·80
do 3.	Black do do	7218	13675	7·45	4·25	1·55	2·25	0·45	.....	.....	16·67
do 3.	White, Barton, Toronto.....	7219	13676	10·85	1·70	0·25	1·10	0·35	.....	.....	19·38
do 3.	Black do do	7220	13677	10·42	4·15	2·30	1·45	0·40	.....	.....	21·15
do 3.	White, Hamilton Spice Co.....	7221	13678	9·60	2·85	0·85	1·85	0·15	.....	.....	17·63
do 3.	Black do do	7222	13679	8·15	8·35	3·95	3·65	0·75	.....	.....	16·32
do 3.	White, Bate, Ottawa.....	7223	13680	10·00	1·25	0·40	0·45	0·40	.....	.....	18·97
do 3.	Black do do	7224	13681	9·60	5·05	2·45	1·85	0·75	.....	.....	21·46

Inland Revenue—Adulteration of Food.

PEPPER—Tabulated Statement—*Continued.*

Vendor.	Residence.	Foreign Substances obtained by Microscopi- cal Examination.	Analyst's Observations.
T. R. Davis, 287 Ri- deau St.	Ottawa.....	Wheat and rice starch and microbes.	Adulterated with wheat and rice starch.
do ..	do	Wheat, buckwheat, bean starch, cayenne.	Adulterated with wheat, buckwheat, bean starch and cayenne.
George Forde, Ri- deau St.	do	Wheat and rice starch...	Adulterated with wheat and rice starch.
do ..	do	Rice starch.....	do with rice starch.
P. L. Foisy, cor. Dal- housie and Clarence	do	do	do do
do ..	do	Buckwheat starch.....	do with buckwheat starch.
W. Madden. cor. Queen & Sherwood	do	Rice starch.....	do with rice starch.
A. Rochon, 25 Duke	do	Wheat, buckwheat, rice and bean starches.	Adulterated with buckwheat, wheat, bean and rice starch.

APPENDIX G—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.								
				Moisture.	Ash.				Nitrogen.	Volatile oil.	Ether Extract.	Piperin and Resin.
					Total.	Soluble in water.	Soluble in hydrochloric acid.	Insoluble in hydrochloric acid.				
1894.	<i>Analyst, Dr. W. H. Ellis, Toronto.</i>			p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
Jan. 18	White, Jardine, Toronto ..	4858	13686	9.125	2.075	0.575	.....	2.240	1.398	8.776	7.378
do 18	Black do ..	4859	13687	8.875	6.20	2.900	.....	2.436	1.533	12.797	11.264
do 18	White, Blain, Toronto ..	4860	13688	7.450	15.822	3.297	.....	2.100	0.308	6.682	6.374
do 18	Black do ..	4861	13689	9.300	5.40	1.750	.....	2.240	0.461	9.593	9.132
do 18	White, Dalton, Toronto...	4862	13690	8.725	3.175	0.675	.....	2.128	0.807	9.178	8.371
do 18	Black do ..	4863	13691	8.150	7.50	2.050	.....	2.184	0.663	11.141	10.478
do 18	White do ..	4864	13692	8.650	2.75	0.550	.....	2.072	0.182	8.447	8.265
do 18	Black do ..	4865	13693	8.550	6.300	3.200	.....	2.296	0.626	9.562	8.936
do 18	White, Toronto Spice Co..	4866	13694	9.200	3.375	0.600	.....	2.072	0.264	7.495	7.231
do 18	Black do ..	4867	13695	8.450	6.350	2.000	.....	2.268	0.793	9.956	9.163
	<i>Analyst, F. T. Harrison, London, Ont.</i>											
do 18	Black, Mayell, London....	6363	14033	12.25	3.95	1.70	1.69	.56	.....	.....	.....
do 18	White do ..	6367	14034	12.95	2.25	.23	1.70	.32	.....	.....	.....
do 19	White, Gorman, London...	6368	14036	12.60	1.15	.08	0.77	.30	.....	.....	.....
do 19	Black do ..	6364	14037	8.10	4.65	2.25	2.12	.28	.....	.....	.....
do 19	Black, Mayell, London....	6365	14039	9.40	4.00	1.97	1.72	.31	.....	.....	.....
do 19	White, Gorman, London...	6369	14041	10.95	1.80	0.24	1.31	.25	.....	.....	.....
do 20	Black do ..	6366	14042	11.50	4.18	1.90	1.63	.65	.....	.....	.....
do 20	White	6370	14043	10.70	3.25	.50	2.50	.25	.....	.....	.....
	<i>Analyst, Prof. E. B. Kenrick, Winnipeg.</i>											
do 13	Black, Gorman, London...	6702	12398	8.62	4.78	2.73	.....	.....	.....	5.67	.....
do 13	White, Sutherland, Winnipeg.	6704	1240	8.40	2.25	0.98	.....	.....	.....	Trace.	.....
do 13	do ..	6705	14501	10.85	3.25	1.10	.....	.....	.....	3.55	.....
do 13	Black, Ewing, Montreal...	6706	14502	10.24	5.80	1.92	.....	.....	.....	5.60	.....
do 13	White, Dyson, Winnipeg...	6708	14504	11.18	3.03	1.28	.....	.....	.....	3.80	.....
do 13	Black, Williams, Winnipeg	6710	14506	14.15	5.90	1.90	.....	.....	.....	5.55	.....
do 13	White, Pure Gold Co., Toronto.	6712	14508	12.40	2.55	0.47	.....	.....	.....	2.50	.....
do 13	Black do ..	6713	14509	11.60	7.00	2.42	.....	.....	.....	5.10	.....

Inland Revenue—Adulteration of Food.

PEPPER—Tabulated Statement—*Concluded.*

Vendor.	Residence.	Foreign Substances observed by Microscopi- cal Examination.	Analyst's Observations.
R. Howell, 472 Spadina Ave.	Toronto		Genuine.
do	do		do
C. B. Bridgland, Spadina Ave.	do		Adulterated by admixture with ten per cent sulphate of lime.
do	do		Genuine.
E. W. Short, 328 Spadina Ave.	do		do
do	do		do
T. Snowball, 73 Huron St.	do		do
do	do		do
W. Rae, 49 Grange Ave.	do		do
do	do		do
Ferguson & Co., Dundas St.	London	No foreign starch or tissues.	Genuine.
Anderson & Barnard.	do	No foreign substances.	do
W. Horner, Richmond St.	do	do	do
J. C. Trebilcock, Dundas St.	do	Pepper husks much in excess.	Of doubtful purity.
W. H. McCutcheon, Dundas St.	do	Pepper tissues and sticks	Genuine.
J. Fitzgerald, Dundas St.	do	Much rice flour also a little foreign tissue.	Adulterated by addition of rice flour.
John Lawson, Dundas St.	do	No foreign matter.	Genuine.
John Garvey, Dundas St.	do	do	do
P. Magnusson	Selkirk, Man.		Genuine.
J. G. Dagg	do	Wheat starch	Adulterated ; consists mainly of flour.
Snider & Miller	Portage la Prairie.		Genuine.
J. E. Brown	do		do
A. Phaneuf	St. Boniface	Wheat starch	Adulterated with flour.
T. Pelletier	do		Genuine.
J. G. Hargrave	Winnipeg		do
W. Q. Cappel	do		do

APPENDIX H.—INSPECTION

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.							
				Moisture.	Extracts.	Theine.	Tannin.	Ash.			Sp. gr. of 10 per cent decoction.
								Total.	Soluble in water.	Soluble in hydro-chloric acid.	
1894.	<i>Analyst, W. F. Best, St. John, N. B.</i>			p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
Feb. 22.	Ping Suey	5776	13152	5.40	.....	2.10	4.47	9.00	3.80	.....	1.015
do 22.	Young Hyson.....	5777	13153	6.60	.....	2.70	5.75	7.20	3.20	.....	1.016
do 22.	Gunpowder.....	5778	13154	6.10	.....	1.35	3.21	8.40	3.65	.....	1.015
do 22.	Congon.....	5779	13155	10.00	.....	0.45	5.50	8.50	3.00	.....	1.006
do 22.	English Breakfast.....	5780	13156	7.15	.....	1.65	9.50	6.10	3.85	.....	1.014
do 22.	Black, Panzong.....	5781	13157	7.50	.....	1.95	9.45	6.05	3.85	.....	1.012
do 22.	Black.....	5782	13158	7.50	.....	1.80	7.03	5.70	3.60	.....	1.010
do 22.	Congon.....	5783	13160	7.00	.....	1.80	8.21	7.65	4.80	.....	1.013
do 22.	Souchong.....	5784	13163	6.80	.....	1.65	7.58	6.10	3.95	.....	1.012
	<i>Analyst, Dr. M. Fiset, Quebec.</i>										
Feb. 26.	Ping Suey	7668	14044	3.70	28.80	1.44	7.36	11.09	3.37	5.29	Ash insoluble in hydro-chloric acid. 43
do 26.	do	7669	14045	4.34	28.50	1.62	3.94	8.68	3.88	3.38	1.42
do 26.	do	7670	14046	4.84	34.24	3.86	5.91	8.42	4.20	3.30	0.92
do 26.	do	7671	14047	4.30	30.24	2.36	1.97	11.96	3.37	6.20	2.39
do 29.	do	7672	14048	5.32	38.64	3.42	10.12	7.58	4.52	2.56	0.50
do 26.	Young Hyson.....	7673	14049	5.80	38.00	3.50	8.94	6.96	4.52	2.18	0.26
do 26.	do	7674	14050	5.56	33.12	2.82	5.65	8.26	3.89	3.02	1.35
do 26.	do	7675	14051	5.40	30.16	2.22	5.91	8.42	3.58	3.58	1.26
do 26.	do	7676	14052	4.92	31.40	3.58	6.31	6.74	4.40	2.08	0.26
do 26.	Ping Suey, Gunpowder.....	7677	13166	4.18	31.80	2.12	4.60	9.36	3.50	4.08	1.78
do 26.	do do	7678	13167	3.98	31.84	2.10	2.50	9.90	3.64	4.76	1.50
do 26.	Japan tea dust	7679	13168	4.41	30.80	2.20	4.34	14.48	2.80	4.40	7.28
do 26.	Ping Suey, Gunpowder.....	7680	13169	4.44	29.08	2.30	4.47	10.58	3.04	5.00	1.64
	<i>Analyst, F. T. Harrison, London, Ont.</i>										
Feb. 21.	Ping Suey	6371	14044	3.85	29.8	2.3	6.34	9.80	2.75	4.70	2.35
do 21.	do	6372	14045	3.80	29.4	2.2	4.61	7.25	2.60	3.45	1.20
do 31.	do	6373	14046	4.15	34.4	2.7	8.83	7.05	2.70	3.30	1.05
do 21.	do	6374	14047	3.75	30.2	2.3	6.34	10.10	2.35	5.65	2.10
do 21.	do	6375	14048	4.60	33.4	2.5	10.75	6.20	3.45	2.30	0.45
do 21.	Young Hyson.....	6376	14049	5.15	35.4	2.3	11.13	6.20	3.68	2.17	0.35
do 21.	do	6377	14050	4.85	30.2	2.2	6.72	7.45	3.00	2.85	1.60
do 21.	do	6378	14051	4.80	29.0	2.0	6.52	7.35	2.85	3.20	1.30
do 21.	do	6379	14052	4.45	30.2	2.7	10.17	5.95	3.70	1.93	0.32

Inland Revenue—Adulteration of Food.

OF TEA—Tabulated Statement.

Vendor.	Residence.	Microscopical Observations.	Analyst's Remarks.
A. E. Taylor	Montreal.	Well rolled leaves	Not adulterated.
Thos. Wynde.	do	Mostly broken leaves....	do
F. A. Langlais.	do	Well rolled leaves	do
L. S. Rivet	do	Large admixture of seaweed, shells of mollusks, broken tea leaves and stems.	Adulterated.
Assn. Tea Co.	do	Mostly broken leaves ...	Not adulterated.
C. H. Speneral.	do	do	do
J. B. Rosseau.	Quebec.	do	do
W. Noreau.	do	do	do
Lavoie et Latuliffe.	do	do	do
Jackson & Hallett ..	Guelph.	Dirty sediment, broken leaves, too many stalks.	Adulterated; too much mineral matter; probably "lie tea."
McEldery & McCrea	do	do	Doubtful; lie tea may be present; apparently faced.
W. F. Cockshutt....	Brantford	Leaves, sticky, old and burnt.	Good.
E. Chrysler.	do	do	Adulterated; too much mineral matter.
John Walker.	Paris.	Some old leaves	Good.
R. R. Fulton & Co.	Woodstock.	Too many stalks	do
W. A. Wilson	do	A few old and burnt leaves	Fair.
Fitzgerald, Scandrett & Co.	London.	Too many stalks	Pretty good.
W. H. McCutcheon.	do	Fairly clean, some old-looking leaves.	Good.
Morrow & Ewing.	Montreal.	Blackened and old leaves, ash, contains brick-dust	Adulterated; too much mineral matter.
do	do	Leaves, large, burnt and broken.	do do
D. S. Goodlaugh.	do	Characters indistinguishable.	do do
do	do	Leaves sticky, broken and burnt.	do do
Jackson & Hallett ..	Guelph.	Leaves mostly broken and apparently rotten, partly lie tea.	Adulterated; very poor flavour.
McEldery & McCrea	do	Pieces of wood and dirt, leaves badly broken.	Poor quality.
W. F. Cockshutt....	Brantford	Contains foreign tissue, berries and seeds, leaves in good condition.	Odour good.
E. Chrysler.	do	Contains some lie tea....	Adulterated; very poor flavour.
John Walker.	Paris.	No foreign leaves	Pure.
R. R. Fulton	Woodstock.	do	Pure and of good quality, though old.
W. A. Wilson	do	Contains much facing....	Of poor quality.
Eitzgerald, Scandrett & Co.	London.	Contains much facing, also too many stems and stalks.	Of inferior quality.
W. H. McCutcheon.	do	No foreign leaves. . . .	An excellent tea with a fine flavour.

APPENDIX H.—INSPECTION

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.				
				Moisture.	Extract.	Theine.	Ash.	
							Total.	Soluble in water.
1894.	<i>Analyst, Dr. J. B. Edwards, Montreal.</i>			p. c.	p. c.	p. c.	p. c.	p. c.
Feb. 17.	Ping Suey	5535	13152	4.15	30.60	1.54	8.55	3.80
do 17.	Young Hyson.....	5536	13153	3.45	25.10	1.60	7.45	3.20
do 19.	Gunpowder.....	5537	13154	4.9	26.00	2.5	7.85	3.20
do 20.	Congou	5538	13155	8.4	10.20	1.01	8.20	3.50
do 20.	English Breakfast	5539	13156	5.40	28.50	3.40	5.95	3.70
do 20.	Black Panzong	5540	13157	5.40	26.00	2.25	6.10	3.85
do 20.	Black	5541	13158	5.9	22.2	2.00	5.68	3.45
do 20.	Gunpowder.....	5542	13159	4.50	27.10	1.50	9.70	4.15
do 24.	Congou	5543	13160	5.65	22.10	1.70	6.00	2.40
do 24.	Ping Suey	5544	13161	4.80	27.90	2.40	7.45	4.95
do 24.	do	5545	13162	4.5	25.0	1.0	8.10	3.10
do 24.	Souchong	5546	13163	5.15	25.60	3.20	5.85	3.65
do 24.	Ping Suey	5547	13164	4.6	30.0	1.4	8.85	3.00
do 24.	do	5548	13165	4.65	28.80	2.00	8.45	2.60
Mar. 20.	Gunpowder.....	5549	13170	3.9	29.6	1.00	7.90	3.60
do 20.	do	5550	13171	4.5	29.60	2.60	8.10	3.20
do 20.	do	5551	13172	4.0	28.6	1.4	8.70	3.60
do 20.	do	5552	13173	4.00	29.40	1.80	8.60	3.65
do 20.	do	5553	13174	4.85	26.60	2.40	8.60	3.50
do 20.	do	5554	13175	4.4	28.6	2.6	8.30	3.35

Inland Revenue—Adulteration of Food.

OF TEA—Tabulated Statement—Continued.

Vendor.	Residence.	Microscopical Observations.	Analyst's Remarks.
A. E. Taylor	Montreal.....	Genuine leaves, fragments of quartz and sand.	Genuine.
Thos. Wynde.....	do	Leaves much broken, fragments of quartz.	Not adulterated, but of inferior quality.
T. A. Langlois	do	No foreign leaves	Genuine tea.
L. S. Rivet.....	do	Leaves broken and burned, much stalk, shells, sand and wood-fibre.	Adulterated with heterogenous foreign matter and leaves.
Association Tea Co..	do	Genuine leaves, mixed brands.	Genuine.
C. U. Spenarel.....	do	No foreign leaves.....	do
W. Noreau	Quebec	Leaves much broken ..	do
Léon Gaboury.....	do	Coarse leaves, dust and China clay.	Doubtful; of poor quality.
J. B. Rosseau.....	do	Leaves much broken	do
do	do	Genuine tea leaves	Genuine.
do	do	Contains foreign leaves..	Of low quality; probably adulterated abroad.
Lavoie & Latuliffe...	do	Broken leaves and tea dust	Genuine.
Chas. Lacaille & Co..	Montreal.....	Much stalk, dust and broken leaves.	Adulterated; China clay in excess; of inferior quality.
do	do	Broken leaves, tea dust and fragments of seeds.	Inferior tea; not adulterated.
D. Stroud & Co.....	do	No foreign leaves, tea dust and overkilned fragments.	Made-up tea from fragments and mucilage heavily faced; not adulterated.
Morrow & Ewing....	do	No foreign leaves enfolded, tea dust with mucilage and clay.	Unadulterated; of fair quality in respect of theine.
do	do	No foreign leaves.....	Manufactured of tea leaves, dust and gum; not adulterated.
do	do	No foreign leaves, tea leaves and tea dust agglutinated.	A manipulated tea; not adulterated.
do	do	do ..	do
do	do	do ..	do

APPENDIX I.—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF				
				Moisture.	Glucose.	Cane sugar.	Solids, not sugar.	Glucose after inversion.
1894	<i>Analyst, M. Bowman, Halifax, N.S.</i>			p. c.	p. c.	p. c.	p. c.	p. c.
Mar. 20	W. W. Black, Truro, N. S.	7991	14202	19.24	72.72			
do 20	do do do	7992	14203	17.90	74.90			
do 20	A. Johnston, Stratford, Ont.	7993	14204	17.55	75.18			
do 20	E. G. Orrett, Jamaica.	7994	14205	19.32	74.62			
do 20	M. J. Lewis, Willowbank, N. S. ...	7995	14206	19.28	68.36			
do 20	.....	7996	14207	26.85	65.10			
do 21	Canadian Honey Co., Halifax.	7997	14208	17.88	71.56			
do 21	.....	7998	14210	30.57	59.52			
do 21	.....	7999	14211	17.82	72.20			
do 21	— Kerry, Montreal.	8000	14212	20.94	68.49			
do 22	W. D. Black, Truro.	8001	14213	20.11	66.05			
April 6	do do do	8002	14214	19.04	70.42			
do 6	— Evans, Montreal.	8003	14215	17.21	76.17			
do 6	W. D. Black, Truro.	8004	14216	23.78	67.96			
do 6	do do do	8005	14217	29.05	66.22			
do 6	— Brown, Halifax.	8006	14218	19.17	71.51			
do 6	do do do	8007	14219	18.25	72.01			
do 6	W. D. Black, Truro.	8008	14220	25.84	68.49			
do 7	P. Geric, Ont.	8009	14221	18.70	75.70			
do 7	.....	8010	14222	19.06	68.49			
	<i>Analyst, Dr. F. X. Valade, Ottawa.</i>							
Feb. 16	D. Scott, Riceville, Ont.	7229	13701	39.1	45.88	5.73	9.29	51.92
do 16	.....	7230	13703	37.45	40.62	11.03	10.90	52.24
do 16	G. Kemp, Navan, Ont.	7231	13704	32.58	44.53	6.32	16.57	51.18
do 17	D. O'Mera, Bowesville, Ont.	7232	13708	35.60	47.91	2.56	13.93	50.62
do 17	.....	7233	13709	34.75	44.85	6.01	14.39	51.18
do 17	.....	7234	13710	34.88	44.85	6.08	14.18	51.27
do 17	A. Hoshal, Beamsville, Ont.	7235	13711	33.58	45.31	4.42	16.69	49.96
do 17	G. Kemp, Navan, Ont.	7236	13712	37.28	50.84	8.90	13.00	60.22
do 17	do do do	7237	13713	35.45	46.22	4.48	13.85	50.94
do 17	do do do	7238	13714	36.25	39.69	10.95	15.11	49.23
do 17	.....	7239	13715	33.28	47.26	0.70	18.82	47.93
do 17	.....	7240	13716	32.98	47.07	2.13	17.82	49.31
do 17	.....	7241	13717	31.30	48.24	1.33	19.13	49.64
do 17	.....	7242	13718	29.40	48.89	2.61	19.10	69.01

Inland Revenue—Adulteration of Food.

HONEY—Tabulated Statement.

ANALYSIS.			Vendor.	Residence.	Analyst's Observations.
Ash.	Polarisation.				
	Before inversion.	After inversion.			
p. c.	p. c.	p. c.			
—	1·2	.....	Chas. E. Huggins	Halifax	Genuine.
—	0·6	.....	R. N. MacDonald	do	do
—	2·8	.....	E. W. Crease	do	do
—	4·1	.....	do	do	do
—	1·8	.....	Jas. Scott & Co.	do	do
—	2·2	.....	Simson Bros	do	do percentage of water high.
—	2·3	.....	Bauld & Gibson	do	do
—	1·1	.....	Hattie & Mylins	do	Adulterated with water.
—	2·0	.....	Geo. A. Steams	do	Genuine.
—	0·6	.....	J. R. Rawley	do	do
—	2·1	.....	H. A. Taylor	do	do
—	1·7	.....	C. McNab	Dartmouth	do
+	0·9	.....	T. M. Power	Halifax	do
—	3·4	.....	H. W. Cameron	do	do but very dirty and unfit for food.
—	2·7	.....	Irwin & Sons	do	Adulterated with water.
—	1·4	.....	M. D. Logan	do	Genuine.
—	2·1	.....	Brown Bros. & Co.	do	do
—	2·5	.....	A. H. Buckley	do	do
—	3·0	.....	Forsyth, Sutcliffe & Co.	do	do
—	0·8	.....	Buckley Bros.	do	do
0·02		.....	J. Casey	Ottawa	
0·10		.....	F. H. Cluff	do	
0·01		.....	do	do	
0·02		.....	S. B. & J. A. Kennedy	do	
0·05		.....	do	do	
0·08		.....	C. Moreland	do	
0·04		.....	Latremoirville & Co.	do	
0·05		.....	W. Cunningham	do	
0·02		.....	W. Borthwick	do	
0·02		.....	J. Bambrick	do	
0·09		.....	F. H. Cluff	do	
0·06		.....	W. H. Wooding	do	
0·08		.....	D. McLeod	do	
0·06		.....	G. J. Millar	do	New honey, may contain a considerable quantity of saccharose.

APPENDIX I.—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF				
				Moisture.	Glucose.	Sucrose by reduction.	Solids not Sugar.	Glucose after Inversion.
1894.	<i>Analyst, Dr W. H. Ellis, Toronto.</i>			p. c.	p. c.	p. c.	p. c.	p. c.
April 12	W. D. Black, Truro, N.S.	4873	14202	20.35	76.65	0.86	.....	77.56
do 12	do do	4874	14203	19.59	72.82	5.94	.....	79.07
do 12	A. Johnston, Stratford Ont.	4875	14204	18.37	78.26	0.59	.....	79.07
do 12	E. G. Orrett, Jamaica	4876	14205	21.078	76.65	0.48	.....	77.15
do 12	M. J. Lewis, Willowbank, N.B.	4877	14206	20.54	75.44	2.49	.....	78.06
do 12	.....	4878	14207	27.93	68.98	3.45	.....	72.62
do 12	Canadian Honey Co., Halifax.	4879	14208	19.17	75.34	2.49	.....	77.96
do 12	.....	4880	14210	31.14	61.52	4.50	.....	66.36
do 12	.....	4881	14211	17.45	73.02	6.71	.....	80.08
do 12	Kerry, Watson & Co.	4882	14212	20.56	75.64	2.29	.....	78.06
do 12	W. D. Black, Truro, N.S.	4883	14213	19.82	77.36	1.82	.....	79.47
do 12	do do	4884	14214	19.16	75.34	4.98	.....	80.58
do 12	— Evans, Montreal.	4885	14215	17.60	69.59	6.42	.....	76.35
do 12	W. D. Black, Truro, N.S.	4886	14216	24.26	73.83	0.57	.....	74.43
do 12	do do	4887	14217	28.65	67.27	2.87	.....	70.30
do 12	Brown & Webb, Halifax.	4888	15218	18.28	71.40	5.74	.....	77.46
do 12	do do	4889	14219	18.34	74.83	2.58	.....	77.56
do 12	W. D. Black, Truro, N.S.	4890	14220	15.17	71.41	1.53	.....	73.02
do 12	P. Gerrie, Ont.	4891	14221	18.41	76.25	2.11	.....	78.46
do 12	.....	4892	14222	19.45	77.96	0.76	.....	78.77

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF				
				Moisture.	Glucose or reducing Sugar.	Cane Sugar by Inversion and reduction.	Cane Sugar by Polarisation before and after Inversion.	Glucose after Inversion.
1894.	<i>Analyst, Prof. E. B. Kenrick, Winnipeg.</i>			p. c.	p. c.	p. c.	p. c.	p. c.
Feb. 26	D. Scott, Riceville, Ont.	6714	13701	.....	76.8	3.05	2.39	.....
do 26	.....	6716	13703	.....	71.6	4.71	5.33	.....
do 26	G. Kemp, Navan, Ont.	6717	13704	.....	69.8	3.83	3.87	.....
do 26	D. O'Meara, Bovesville.	6721	13708	.....	74.5	1.45	1.82	.....
do 26	.....	6722	13709	.....	69.3	2.41	2.26	.....
do 26	.....	6723	13710	.....	68.6	3.69	5.50	.....
do 26	A. E. Hostal, Beamsville.	6724	13711	.....	73.8	2.81	3.22	.....
do 26	E. Kemp, Navan, Ont.	6725	13712	.....	72.4	4.13	4.54	.....
do 26	do do	6726	13713	.....	63.0	4.18	5.71	.....
do 26	do do	6727	13714	.....	69.4	.....	1.61	.....
do 26	.....	6728	13715	.....	70.0	2.57	2.91	.....
do 26	.....	6729	13716	.....	75.3	4.48	4.83	.....
do 26	.....	6730	13717	.....	72.4	4.12	5.35	.....
do 26	.....	6731	13718	.....	56.5	17.87	17.51	.....

Inland Revenue—Adulteration of Food.

HONEY—Tabulated Statement—Continued.

ANALYSIS.			Vendor.	Residence.	Analyst's Observations.
Ash.	Polarisation.				
	Before Inversion.	After Inversion.			
p. c.	p. c.	p. c.			
0.04	-10	-19.5	Chas. E. Huggins.....	Halifax	Genuine; polarisation at 22° C.
0.02	-13.6	-16.8	R. N. McDonald.....	do	do
0.04	-15.3	-21.4	E. W. Crease	do	do
0.17	-18.2	-20.9	do	do	do
0.11	-11.9	-15.6	Jas. Scott & Co	do	do
0.10	-12.3	-15.7	Simson Bros	do	do
0.06	-13.8	-15.0	Bauld & Gibson.....	do	do
0.05	-6.9	-11.0	Hattie & Mylins	do	do
0.03	-8.7	-18.0	J. R. Rowley	do	do
0.06	-9.3	-16.2	Geo. A. Stearns.....	do	do
0.01	-17.5	-20.1	H. A. Taylor	do	do
0.04	-11.1	-17.9	Colin McNab	do	do
0.02	-3.9	-18.2	T. M. Powers.....	do	do
0.08	-19.6	-18.0	H. W. Cameron.....	do	do
0.03	-15.2	-16.5	Irwin & Sons.....	do	do
0.06	-8.5	-15.9	M. D. Logan	do	do
0.03	-11.8	-18.0	Brown Bros. & Co.....	do	do
0.04	-15.1	-18.3	A. H. Buckley	do	do
0.04	-12.0	-17.0	Forsythe, Sutcliffe & Co.	do	do
0.04	-6.3	-15.4	Buckley Bros	do	do

ANALYSIS.		Vendor.	Residence.	Analyst's Observations.
Ash.	Specific Rotatory Power.			
p. c.				
.....	-16.4	J. Casey	Ottawa.....	Genuine.
.....	-9.7	F. H. Cluff	do	do
.....	-10.8	do	do	do
.....	-13.6	S. B. & J. A. Kennedy.	do	do
.....	-12.7	C. Moreland	do	do
.....	-8.6	Latremouille & Co.....	do	do
.....	-13.3	do	do	do
.....	-9.7	W. Cunningham	do	do
.....	-9.3	W. Borthwick.....	do	do
.....	-12.8	J. Bambrick	do	do
.....	-8.9	F. H. Cluff	do	do
.....	-7.6	W. H. Wooding.....	do	do
.....	-7.9	D. McLeod	do	do
.....	+0.81	J. G. Miller.....	do	Adulterated with cane sugar, or by feeding bees on same.

APPENDIX J.—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF		
				Melting Point.	Specific Gravity.	Iodine absorbed.
1894.	<i>Analyst Dr. F. X. Valade, Ottawa.</i>					p. c.
Feb. 17	.....	7243	13702	62·2°C	0·9625	..... Carbonises.....
do 17	E. Caverley, Line, P.O., Ont.....	7244	13705	62·0°C	0·9625	..... do.....
do 17	do do.....	7245	14706	61·5°C	0·9625	..... do.....
do 17	McLatchie, Ottawa.....	7246	13707	61·5°C	9·9625	..... do.....
	<i>Analyst Prof. E. B. Kenrick, Winnipeg.</i>					
do 26	.....	6715	13702	63°C	0·9655	6·8.....
do 26	E. Caverley, Line, P.O., Ont.....	6718	13705	63°C	0·9655	6·22.....
do 26	do do.....	6719	13706	63·3°C	0·9660	6·53.....
do 26	McLatchie, Ottawa.....	6720	13707	62°C	0·9660	7·80.....

Inland Revenue—Adulteration of Food.

BEESWAX—Tabulated Statement.

ANALYSIS.	Vendor.	Residence.	Observations.
Test with sodium carbonate.			
No permanent emul- sion	F. H. Cluff	Ottawa	Genuine.
do	W. H. Wooding.....	do	do
do	D. McLeod.....	do	do
do	G. J. Millar.....	do	do
.....	F. H. Cluff	do	Genuine; responds to the qualita- tive test of the British Pharma- copœia.
.....	W. H. Wooding.....	do	do
.....	D. McLeod.....	do	do
.....	G. J. Millar	do	do

APPENDIX K.—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.					
				Total Nitrogen.	Nitrogen as Ammonia.	Phosphoric Acid.			
						Soluble.	Reverted.	Insoluble.	Total.
1893.	<i>Analyst, M. Bowman, Halifax, N.S.</i>			p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
Nov. 24..	Ceres, Jack & Bell, Halifax	7968	12776	.....	2.79	3.41	.....	.....	8.31
do 24..	General fertilizer, Archibald & Sons, Truro, N.S.	7969	12780	.....	0.66	3.68	.....	.....	5.44
do 24..	Popular phosphate, Jack & Bell.....	7970	12781	.....	1.87	1.38	.....	.....	7.03
do 24..	Potato fertilizer, Jack & Bell.....	7972	12783	.....	1.50	3.48	.....	.....	6.42
May 14..	Potato phosphate, Jack & Bell	8011	14224	.....	3.60	2.79	.....	.....	7.58
do 14..	Ceres, Jack & Bell	8012	14225	.....	2.52	2.48	.....	.....	10.22
do 14..	Pacific guano, Guano Co., Boston.....	8013	14226	.....	4.25	5.82	.....	.....	11.88
do 14..	Eureka phosphate, Pidgeon Company, Windsor.....	8014	14227	.....	3.32	2.86	.....	.....	8.56
do 14..	Carter's phosphate, Carter, London, E.....	8015	14228	.....	2.93	1.44	.....	.....	19.44
do 19..	Bowker's bone meal, Bowker, Boston	8016	14229	.....	4.37	.....	.....	.....	20.66
do 19..	Potato phosphate, Chemical Fertilizer Co., St. Johns.....	8017	14230	.....	3.75	6.02	.....	.....	12.12
do 19..	Imperial superphosphate, Chemical Fertilizer Co., St. Johns.....	8018	14231	.....	3.22	6.39	.....	.....	11.09
do 19..	Apple-tree phosphate, Jack & Bell.....	8019	14232	.....	3.81	2.99	.....	.....	6.95
do 19..	Ground bone, Churchill, Yarmouth.....	8020	14233	.....	5.20	.....	.....	.....	20.14
do 19..	Bone meal, Fertilizer Chemical Co.....	8021	14234	.....	4.83	.....	.....	.....	20.01
do 19..	Potato fertilizer, Bradley, Boston.....	8022	14235	.....	3.02	5.48	.....	.....	10.68
do 19..	Bone fertilizer, Millar	8023	14236	.....	3.91	0.39	.....	.....	19.62
do 19..	New method, Bradley, Boston.....	8024	14237	.....	3.73	5.74	.....	.....	10.86
do 30..	Bone fertilizer, Millar, Nova Scotia.....	8025	14238	.....	3.01	1.05	.....	.....	16.59
do 30..	Potato fertilizer, Millar, Nova Scotia.....	8026	14239	.....	2.79	7.89	.....	.....	8.39
do 30..	Potato manure, Pidgeon, Nova Scotia.....	8027	14240	.....	3.81	1.52	.....	.....	5.46
do 30..	Ground bone, Pidgeon, Nova Scotia.....	8028	14241	.....	4.98	.....	.....	.....	23.84
do 30..	do do do	8029	14242	.....	3.84	.....	.....	.....	21.16
do 30..	Excoelsior grain fertilizer, Salter, Nova Scotia.....	8030	14243	.....	3.51	1.84	.....	.....	5.42
do 30..	Potato fertilizer, Salter, Nova Scotia.....	8031	14244	.....	3.21	5.26	.....	.....	6.42
do 30..	Ground bone, Archibald & Blanchard.....	8032	14245	.....	3.93	.....	.....	.....	20.82
do 30..	do Archibald & Son, Truro.....	8033	14246	.....	3.99	.....	.....	.....	20.22
	<i>Analyst, W. F. Best, St. John, N.B.</i>								
April 6..	Standard, Coe, New York.....	5785	6460	1.71	2.07	.....	.....	.....	14.66
do 6..	Grass and grain, Coe, New York.....	5786	6461	1.08	2.17	.....	.....	.....	14.97
do 6..	Superphosphate, Reid, St. John.....	5787	6462	2.37	2.87	.....	.....	.....	19.32
do 6..	Bone meal, Provincial Fertilizer Co.....	5788	6463	3.20	3.87	.....	.....	.....	27.63
do 16..	Royal Canadian, Nichol's Chemical Co.....	5789	6464	4.52	5.46	.....	.....	.....	12.77
do 23..	Eureka phosphate, Pidgeon Fertilizer Co.....	5790	6465	2.34	2.83	.....	.....	.....	10.69
do 23..	Pilgrim, Reese, Baltimore.....	5791	6466	0.68	0.83	.....	.....	.....	13.38
do 23..	Standard, Coe, New York.....	5792	6467	1.43	1.73	.....	.....	.....	14.92
do 23..	Bradley's XL, Bradley, Boston.....	5793	6468	2.40	2.90	.....	.....	.....	14.70
do 23..	Imperial superphosphate, Provincial Fertilizer Co.....	5794	6469	1.26	1.52	.....	.....	.....	16.07
do 23..	Ceres, Jack & Bell.....	5795	6470	2.11	2.55	.....	.....	.....	12.02
do 23..	Potato manure, Pidgeon Fertilizer Co.....	5796	6471	4.06	4.91	.....	.....	.....	8.60

Inland Revenue—Adulteration of Food.

FERTILIZERS—Tabulated Statement.

Potash.	Moisture.	Vendor.	Residence.	Analyst's Observations.
p. c.	p. c.			
1·12	19·48	De Wolfe & Co.	Kentville, N.S.	Adulterated, being deficient in potash.
0·96	23·83	Archibald & Sons.	Truro, N.S.	Adulterated, being deficient in phosphoric acid and potash.
1·37	21·61	Jack & Bell.	Halifax.	Unadulterated.
1·93	24·64	do	do	Adulterated, being deficient in potash and phosphoric acid.
4·50	18·75	Robert Settle.	Dartmouth.	
2·10	14·26	do	do	
2·52	12·96	E. M. Walker.	do	
1·75	15·00	T. Gentles & Son.	do	
.....	4·90	— Saunders.	Halifax.	
.....	6·26			
1·42	17·73	{ Farmers' and Citizens Co-operative Co. }	Yarmouth.	
2·90	16·45			
7·02	19·87	E. Allan.	Milton, Yarmouth.	
.....	10·12	F. & C. Coop Co.	Yarmouth.	
.....	7·38	do	do	
1·86	14·77	E. Burnham.	Digby, N.S.	
.....	7·65	do	do	
3·57	16·00	do	do	
3·75	8·65	C. Millar.	Middleton, N.S.	
5·42	16·31	do	do	
4·25	17·29	Owen Wheelock.	do	
.....	10·10	Pidgeon Fertilizer Co.	Windsor.	
.....	8·29	J. B. North, agent.	Hantsport, N.S.	
2·74	.....	Henry Salter.	do	
2·12	.....	Inglis Smith.	Falmouth, N.S.	
.....	9·69	Archibald & Blanchard.	Truro, N.S.	
.....	9·61	S. Archibald & Son.	do	
2·31	12·60	John McMulkin.	St. John, N.S.	
3·85	6·10	do	do	
1·05	4·45	J. Horncastle & Co.	do	
.....	9·30	de B. Carritte.	do	
5·15	10·30	L. & C. White & Co.	Sussex, N.B.	
2·40	18·70	James A. Campbell.	do	
7·20	11·15	David Semple.	East Florenceville.	
1·60	11·20	Union Foundry Co.	Woodstock, N.B.	
1·00	15·20	W. F. Dibblee.	do	
5·00	7·45	D. Hoegg.	Fredericton.	
2·15	12·10	Geo. Hatt & Son.	do	
2·41	11·25	J. F. Vanbuskirk.	do	

APPENDIX K.—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.					
				Total Nitrogen.	Nitrogen as Ammonia.	Phosphoric Acid.			
						Soluble.	Reverted.	Insoluble.	Total.
				p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
1893.	<i>Analyst, Dr. M. Fiset, Quebec.</i>								
April 20..	Guano, Steele, Toronto.....	7681	12976	.....	2.04	0.64	5.27	25.90	31.81
do 20..	Bone dust, Steele, Toronto.....	7682	12977	.....	4.40	0.80	4.96	16.15	21.91
do 20..	Champion, Grant, Ingersoll.....	7683	12978	.....	7.46	0.96	3.84	10.23	15.03
do 20..	Ingersoll fertilizer, Grant, Ingersoll....	7684	12979	.....	9.25	1.11	3.21	10.87	15.19
do 20..	Farmer's pride, Freeman, Hamilton.....	7685	12980	.....	3.08	1.60	2.40	5.11	9.11
do 20..	Animal fertilizer, Freeman, Hamilton....	7686	12981	.....	5.06	2.56	4.15	6.40	13.11
do 20..	Bone meal, Works, Detroit.....	7687	12982	.....	3.39	0.80	7.19	20.79	28.78
do 20..	Superphosphate, Provincial Fertilizer Works, St. John.....	7688	12983	.....	0.00	7.84	3.98	7.68	19.50
do 20..	Prolific brand, Provincial Fertilizer Works, St. John.....	7689	12984	.....	2.21	4.64	2.23	3.04	9.91
do 25..	Guano, imported.....	7690	12985	.....	3.92	3.51	.....	21.90	24.94
do 25..	Fertilizer, Keith, Toronto.....	7691	12986	.....	6.96	1.28	0.16	1.76	3.20
May 21..	Bone meal, Bowker, Boston.....	7692	14229	.....	4.10	2.40	3.23	16.95	22.58
do 21..	Imperial potato phosphate, Provincial Chemical Works.....	7693	14230	.....	2.01	7.20	0.83	6.87	14.90
do 21..	Imperial Superphosphate, Provincial Chemical Works.....	7694	14231	.....	2.71	7.99	2.97	4.00	14.96
do 21..	Apple tree phosphate, Jack & Bell.....	7695	14232	.....	3.27	4.64	2.80	3.67	11.11
do 21..	Ground bone, Churchill, N.S.....	7696	14233	.....	4.60	0.48	2.64	20.63	23.75
	<i>Analyst Dr. J. B. Edwards, Montreal.</i>								
April 12..	"Special," Standard Fertilizer Co.....	5555	13176	.....	3.80	5.28	1.28	4.31	10.87
do 12..	"Standard," do.....	5556	13117	.....	2.08	6.72	2.55	5.28	14.55
do 12..	"Victor," Nichols, Capelton, Que.....	5557	13178	.....	2.9	6.24	0.95	3.36	10.33
do 12..	"Reliance," do.....	5558	13179	.....	1.79	5.28	2.87	3.68	11.83
do 12..	"Royal Canadian," Nichols, Capelton, Que.....	5559	13180	.....	.....	9.43	1.61	2.39	13.43
do 12..	"Sol P. Guano," Pacific Guano Co.....	5560	13181	.....	.....	6.88	3.03	1.60	11.51
do 12..	"Royal Canadian," Nichols.....	5561	13182	.....	4.70	7.51	1.76	2.72	11.99
do 12..	"Pacific Guano," Guano Co., Boston.....	5562	13183	.....	2.72	5.28	4.14	2.57	11.99
do 12..	"Victor," Nichols, Capelton, Que.....	5563	13184	.....	2.47	8.31	1.13	3.39	11.83
do 12..	"Reliance," do.....	5564	13185	.....	2.39	7.35	1.13	4.31	12.79
do 12..	"Royal Canadian," Nichols, Capelton, Que.....	5567	13186	.....	4.35	9.11	0.33	2.55	11.99
do 12..	"Special," Standard Co.....	5568	13187	.....	.....	5.12	.....	3.77	8.89
do 12..	"Standard," do.....	5569	13188	.....	0.852	6.24	1.27	3.68	11.19
do 12..	"Bone Phosphate," Nichols.....	5565	13189	.....	.....	11.99	3.21	3.98	19.18
do 12..	"Bone Meal," Freeman, Hamilton.....	5566	13190	.....	5.33	.....	8.48	14.07	22.55
do 12..	"No. 1 Fertilizer," Standard Co.....	5570	13191	.....	.....	8.00	2.23	3.20	13.43
do 12..	"Fruit Tree Fertilizer," Standard Co.....	5571	13192	.....	2.64	4.48	2.23	4.80	11.51

Inland Revenue—Adulteration of Food.

FERTILIZERS—Tabulated Statement—Continued.

Potash.	Moisture.	Vendor.	Residence.	Analyst's Observations
p. c.	p. c.			
7.94		J. Pike.....	Woodstock, Ont....	Phosphoric acid, ammonia and potash calculated on the dry substance in these samples.
6.40		do	do	
5.28		J. L. Grant & Co.....	Ingersoll	
6.44		do	do	
3.20		John Tanton	London.....	
4.52		do	do	
6.72		Pearce & Co.....	do	
6.05		Canadian Manufacturing Co..	do	
6.82		do	do	
7.06		George Keith.....	Toronto	
10.32		do	do	
5.82		} Farmers' and Citizens' Co- operative Co.	} Yarmouth.....	
17.34				
16.60				
19.46		E. Allan	Milton	
9.34		Farmers' and Citizens' Co- operative Co.	Yarmouth.....	
6.23	11.00	Bright and Tel	Cowansville, Que....	Unadulterated.
2.99	15.4	do	do	
3.96	10.75	Luck and Mitchell.....	Sherbrooke, Que	
2.29	11.95	do	do	
	10.05	do	do	
	13.80	Codure fils et Cie	do	
6.85	10.70	H. A. Channel..	Stanstead	
2.70	14.30	C. H. Taylor	do	
3.13	11.00	Allen, Taylor & Co.....	Waterloo	
2.97	9.75	do	do	
4.13	11.25	do	do	
7.13	13.75	Robinson & Tenny	do	do
2.280	15.00	do	do	
	12.6	Wm. Evans, McGill St	Montreal.....	
	7.20	do	do	Falsely called bone phosphate, being of mineral origin and containing no ammonia, therefore may be called adulterated.
1.78	17.4	Brodie & Harvie, Blenry St ..	do	
8.86	9.9	do	do	

APPENDIX K.—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.					
				Total Nitrogen.	Nitrogen as Ammonia.	Phosphoric Acid.			
						Soluble.	Reverted.	Insoluble.	Total.
1893.	<i>Analyst Dr. F. X. Valade, Ottawa.</i>			p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
April 12.	"Special," Standard Fertilizer Co.	7247	13176	.....	3.49	5.43	1.59	2.72	9.75
do 12.	"Standard," do	7248	13177	.....	2.70	7.19	2.55	3.83	13.59
do 12.	"Victor," Nichols, Capelton, Que.	7249	13178	.....	2.64	5.43	2.97	1.91	10.32
do 12.	"Reliance," do	7250	13179	.....	1.28	6.87	0.63	2.87	10.39
do 12.	"Royal Canadian," Nichols, Capelton, Que.	7251	13180	.....	3.37	9.91	1.119	1.59	12.63
do 12.	"Sol P. Guano," Pacific Guano Co., Boston.	7252	13181	.....	2.23	7.51	0.959	1.12	9.59
do 16.	"Royal Canadian," Nichols	7253	13182	.....	3.91	7.35	1.119	1.92	10.39
do 16.	"Pacific Guano," Guano Co., Boston ..	7254	13183	.....	2.35	5.56	3.67	1.63	10.87
do 16.	"Victor," Nichols, Capelton, Que.	7255	13184	.....	1.99	7.51	2.07	1.91	11.51
do 16.	"Reliance," do	7256	13185	.....	2.07	5.43	3.35	3.19	11.99
do 16.	"Royal Canadian," Nichols, Capelton, Que.	7257	13186	.....	4.21	7.83	2.87	0.79	11.51
do 16.	"Special," Standard Co.	7258	13187	.....	3.09	5.43	0.95	2.39	8.79
do 16.	"Standard," do	7259	13188	.....	2.60	6.07	2.39	2.87	11.35
do 28.	"Bone Phosphate," Nichols	7260	13189	.....	0.306	10.39	4.00	3.68	18.07
do 28.	"Bone Meal," Freeman, Hamilton ..	7261	13190	.....	5.08	.....	12.00	11.19	23.19
do 28.	"No. 1 Fertilizer," Standard Co.	7262	13191	.....	1.20	7.20	3.19	3.04	13.43
do 28.	"Fruit Tree Fertilizer," Standard Co.	7263	13192	.....	2.41	3.20	1.71	5.28	10.19
	<i>Analyst, Dr. W. H. Ellis, Toronto.</i>								
June 1.	"Bone and Potash," Freeman, Hamilton	4893	14053	3.18	3.86	4.59	1.799	2.30	8.70
do 1.	"Potato Manure," do ..	4894	14054	4.05	4.91	5.59	2.463	1.79	9.85
do 1.	"Pure Bone," do ..	4895	14055	4.20	5.09	Trace	9.72	13.69	23.41
do 1.	"Early Vegetable," do ..	4896	14056	3.46	4.20	7.33	1.62	1.024	9.98
do 1.	"Sure Growth," do ..	4897	14057	2.74	3.32	5.93	3.09	0.95	9.98
do 1.	"Blood Manure," Davies, Toronto.	4898	14058	5.67	6.88	0.366	5.61	5.24	11.19
do 1.	"Nitrate of Soda," Steele.	4899	14059	15.65	.....	.....	.....	.....	.....
do 1.	"Thomas Ph. Powder," Albert, London	4900	14060	0.10	0.12	0.00	2.94	6.97	9.91
do 1.	"Royal Canadian," Nicholas	8401	14061	3.93	4.77	7.26	2.33	1.02	10.62
do 1.	"Bone Meal," Detroit	8402	14068	1.48	1.79	0.00	9.08	21.36	30.45
do 1.	"Farmers Pride," Freeman, Hamilton.	8403	14069	3.08	3.74	2.46	3.86	2.62	8.956
do 1.	"Grape Food," do ..	8404	14070	3.86	4.68	3.597	6.511	1.152	11.26
do 1.	Animal fertilizers do ..	8405	14071	6.07	7.36	2.198	3.816	3.582	9.59
do 1.	do Rowlin, Hamilton.	8406	14079	7.81	9.48	0.533	7.984	2.56	11.06
do 1.	Bone meal do ..	8407	14080	6.22	7.55	0.399	9.33	3.838	13.56

Inland Revenue—Adulteration of Food.

FERTILIZERS—Tabulated Statement—*Continued.*

Potash.	Moisture.	Vendor.	Residence.	Analyst's Observations.
p. c.	p. c.			
5.12	17.35	Boright and Tel	Cowansville, Que....	
1.74	16.55	do	do	
2.86	13.50	Luck & Mitchell	Sherbrooke	
3.34	12.00	do	do	
4.52	11.35	do	do	
3.59	14.75	Coderre, fils et Cie.	do	
4.08	10.50	H. A. Channel	Stanstead	
2.57	14.00	C. H. Taylor	do	
3.15	14.40	Allen, Taylor & Co.	Waterloo, Que	
2.45	11.15	do	do	
3.94	10.77	do	do	
6.32	13.65	Robinson & Tenny	do	
2.43	14.80	do	do	
0.039	14.35	Wm. Evans, McGill St.	Montreal	
0.193	7.80	do	do	
1.56	16.18	Brodie & Harvie, Bleury St..	do	
9.43	9.00	do	do	
2.95	9.90	Freeman	Hamilton, Ont.	
5.23	5.90	do	do	
0.23	8.10	do	do	
8.69	8.87	do	do	
1.95	11.65	do	do	
0.309	4.67	Wm. Pennie	Toronto	
	1.450	Steele Briggs	do	
0.174	0.100	Marcon Co.	do	It consists of nitrate of soda, of which it contains 95 per cent.
6.56	7.25	do	do	
0.097	3.050	J. S. Pearce & Co.	London	
2.39	2.275	John Tanton & Son	do	
5.50	3.275	do	do	
0.54	3.55	do	do	
0.348	6.350	John S. Pearce & Co.	do	
0.328	5.150	do	do	

APPENDIX K.—INSPECTION OF

Date of Collection.	Description of Sample and name of furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF ANALYSIS.							
				Total Nitrogen.	Nitrogen as Ammonia.	Phosphoric Acid.					
						Soluble.	Reverted.	Insoluble.	Total.		
1894.	<i>Analyst, F. T. Harrison, London, Ont.</i>			p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
April 18..	"Guano," Steele, Toronto.....	6380	12976	2.00	2.43	.57	8.21	14.38	23.16		
do 18..	"Bone Dust," Steele, Toronto.....	6381	12977	3.05	3.70	.32	5.95	13.82	29.09		
do 18..	"Champion," Grant, Ingersoll.....	6382	12978	7.05	8.56	.83	4.04	7.99	12.86		
do 18..	"Ingersoll Fertilizer," Grant, Ingersoll.	6383	12979	7.40	8.99	.96	4.07	8.53	13.56		
do 18..	"Farmers' Pride," Freeman, Hamilton.	6384	12980	3.57	4.34	2.05	2.82	4.47	9.34		
do 18..	"Animal Fertilizer" do	6385	12981	4.66	5.66	2.17	6.28	2.55	11.00		
do 18..	"Bone Meal," Detroit.....	6386	12982	2.98	3.62	.38	4.35	21.62	26.35		
do 18..	"Superphosphate," Fertilizer Works, London.	6387	12983	.....	.....	7.16	2.31	7.29	16.76
do 18..	"Prolific Brand, Fertilizer Works, London.	6388	12984	2.04	2.48	3.84	1.41	3.71	8.96		
do 18..	"Guano," imported.....	6389	12985	2.92	3.55	2.30	5.12	15.61	23.03		
do 18..	"Fertilizer," Keith, Toronto.....	6390	12986	5.96	7.24	.39	1.82	.39	2.60		
	<i>Analyst, Prof. E. B. Kenrick, Winnipeg.</i>										
do 12..	"Standard," Coe, New York.....	6732	6460	1.72	.....	7.38	2.30	2.75	12.43	
do 12..	"Grass and Grain," Coe, New York....	6733	6461	1.31	.....	7.48	3.57	2.92	13.97	
do 12..	"Superphosphate," Reid, St. John....	6734	6462	2.88	.....	1.65	4.55	7.75	13.95	
do 12..	"Bone Meal," Fertilizer Works.....	6735	6463	3.25	.....	0.31	9.70	14.30	24.31	
do 17..	"Royal Canadian," Nichols.....	6736	6464	4.65	.....	8.93	1.03	1.40	11.36	
do 17..	"Eureka Phosphate," Pidgeon.....	6737	6465	2.01	.....	2.88	3.30	2.47	8.65	
do 28..	"Pilgrim Brand, Reeves, Baltimore....	6738	6466	1.29	.....	2.45	6.71	0.95	10.11	
do 28..	"Standard," Coe.....	6739	6467	1.86	.....	7.88	2.68	2.10	12.66	
do 28..	"Bradley's X L," Bradley, Boston.....	6740	6468	2.51	.....	8.73	1.82	1.73	12.28	
do 28..	"Imperial Superphosphate," Fertilizer Works, St. John, N.B.	6741	6469	1.69	.....	7.40	1.35	3.02	11.77	
do 28..	"Ceres," Jack and Bell, Halifax.....	6742	6470	2.21	.....	5.01	0.67	3.20	8.88	
do 28..	"Potato Manure," Pidgeon, N.S.....	6743	6471	2.70	.....	3.15	1.72	2.15	7.02	

Inland Revenue—Adulteration of Food.

FERTILIZERS—Tabulated Statement—*Concluded.*

		Vendor.	Residence.	Analyst's Observations.
Potash.	Moisture.			
p. c.	p. c.			
40	6·60	J. Pike.....	Woodstock, Ont	
	5·70	do	do	
2·11	4·95	J. L. Grant & Co.....	Ingersoll.....	
	5·40	do	do	
2·47	2·10	John Tanton.....	London	
50	3·05	do	do	
	5·05	Pearce & Co.....	do	
	9·95	Canadian Chemical Manufac- turing Co.....	do	
2·22	4·60	do	do	
2·50	6·10	George Keith.....	Toronto	
92	10·65	do	do	
1·21		John McMulkin.....	St. John, N.B.....	Genuine.
1·67		do	do	do
1·02		J. Horncastle & Co.....	do	do
		de B. Carritte.....	do	do
5·71		S. & C. White & Co.....	Sussex	do
2·06		J. A. Campbell.....	do	do
2·82		D. Semple.....	East Florenceville...	do
1·67		Union Foundry Co.....	Woodstock, N.B.....	do
		W. F. Dibblee.....	do	do
1·82		D. Hoegg	Fredericton, N.B. ...	do
2·37		Geo. Hatt & Son.....	do	do
		J. F. Vanbuskuk.....	do	do

APPENDIX L.—INSPECTION OF

Date of Collection.	Name of Furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF							
				Water.	Butter Fat.	Salt.	Curd.	Properties			
								Specific Gravity.	Melting Point.		
1894.	<i>Analyst, M. Bowman, Halifax, N.S.</i>			p. c.	p. c.	p. c.	p. c.				
July 11..	Yarmouth Creamery Co.	8034	14247	10.15	87.29	1.80	0.76	.8647			
do 11..	.....	8035	14248	8.08	82.96	7.46	1.50	.8646			
do 11..	J. D. Kelly, Yarmouth	8036	14249	10.13	84.53	3.78	1.56	.8654			
do 11..	Mrs. C. Melawson	8037	14250	13.08	79.39	7.53	1.09	.8654			
do 11..	.....	8038	14251	12.51	81.13	5.15	1.21	.8647			
do 11..	.....	8039	14252	12.50	79.95	6.03	1.52	.8647			
do 11..	.....	8040	14253	11.91	74.62	12.30	1.17	.8630			
do 11..	.....	8041	14254	8.82	86.17	3.77	1.24	.8654			
do 11..	.....	8042	14255	10.50	82.99	5.55	0.96	.8657			
do 11..	.....	8043	14256	11.08	81.43	6.17	1.32	.8660			
do 11..	.....	8044	14257	8.79	83.78	6.27	1.16	.8644			
do 11..	.....	8045	14258	8.09	87.56	3.06	1.29	.8649			
do 11..	.....	8046	14259	11.33	84.18	3.34	1.15	.8652			
do 11..	.....	8047	14260	15.69	76.70	6.42	1.19	.8640			
do 11..	.....	8048	14261	12.74	83.37	3.04	0.85	.8654			
do 11..	.....	8049	14262	11.28	81.06	6.65	1.01	.8647			
do 11..	.....	8050	14263	12.09	84.87	2.22	0.82	.8641			
	<i>Analyst, W. F. Best, St. John, N.B.</i>										
May 19..	J. W. Davidson, Market, St. John....	5797	6472	9.08	87.90	2.00	1.02				
do 19..	.....	5798	6473	10.58	84.50	4.12	0.80				
do 19..	N. Beatty, Wells, N.B.	5799	6474	4.50	90.00	4.24	1.26				
do 19..	E. Whittaker, Hampton, N.B.	5801	6475	10.16	87.64	1.24	0.94				
do 19..	S. Allison, Market, St. John....	5802	6476	10.88	83.48	4.32	1.32				
do 19..	S. B. Raymond, Springfield....	5803	6477	9.70	87.20	2.14	0.98				
do 25..	B. L. Moore, Moose Mills, N.B.	5804	6478	11.46	84.54	3.54	0.46				
do 25..	L. Maxwell, Old Ridge.....	5805	6479	8.52	86.20	4.02	1.26				
do 25..	A. Polley, Bog Road.....	5806	6480	11.60	76.10	11.00	1.30				
do 28..	Mrs. McDowell.....	5807	6481	13.44	82.30	3.78	0.48				
do 28..	Mrs. Burns	5808	6482	12.96	80.26	5.92	0.86				
do 28..	C. Maxwell, Bayside	5809	6483	13.54	82.76	2.94	0.76				
	<i>Analyst, Dr. M. Fiset, Quebec.</i>										
do 24..	C. Langlois & Co., Montreal	7697	13201	11.88	84.40	2.48	1.15	.8642	34.50		
do 24..	.....	7698	13202	10.56	86.22	2.42	0.83	.8670	33.5		
do 24..	.....	7699	13203	13.09	83.49	1.72	1.69	.8642	35.0		
do 24..	V. Rathier, St. Etienne.....	7700	13204	12.29	83.41	3.25	1.07	.8632	35.0		
do 24..	.....	8201	13205	8.68	88.24	2.33	0.75	.8652	36.0		
do 24..	.....	8202	13206	14.38	83.01	1.69	0.95	.8740	33.5		
do 24..	.....	8203	13207	8.14	84.84	6.06	0.96	.8628	31.5		
do 24..	.....	8204	13208	11.94	81.66	5.51	0.88	.8654	36.0		
do 24..	P. Parent, St. Isidore.....	8205	13209	11.15	85.66	1.93	1.27	.8650	33.0		
do 24..	.....	8206	13210	8.61	87.55	2.30	1.54	.8620	36.0		
do 24..	.....	8207	13211	12.28	83.93	2.37	1.41	.8660	35.0		

Inland Revenue—Adulteration of Food.

BUTTER—Tabulated Statement.

ANALYSIS.			Vendor.	Residence.	Analyst's Observations.
of the Fat.					
Koeftstorf No.	Reichert No.	Iodine No.			
		p. c.			
			R. C. Parker	Yarmouth, N.S.	Unadulterated.
			W. C. Wyman	do	do
			F. & C. Cooperative Co	do	do
			Geo. Taylor	Weymouth	Adulterated; contains excess of water.
			G. J. Hoyt	do	do
			C. Burrill & Co.	do	do
			D. O. Sproule	Digby, N.S.	do contains excess of salt.
			E. Bernan	do	Unadulterated.
			Turnbull & Welsh ..	do	do
			J. J. Richards	Halifax	do
			L. Doyle & Co.	do	do
			R. O'Neil	do	do
			J. P. Buckley	do	do
			Hutcheson & Power ..	do	Adulterated; contains excess of water.
			do	do	do
			Lang & Reynolds	do	Unadulterated.
			Shea & Richards	do	do
	14.8	38.86	John Foster	St. John	Not adulterated.
	12.4	39.14	S. McConnell	do	do
	13.8	39.94	Vanwart Bros	do	do
	14.5	34.78	J. T. Raymond	do	do
	13.8	36.40	E. Dibblee	do	do
	14.8	36.44	R. Ritchie	do	do
	14.7	34.53	H. E. Hill	St. Stephens	do
	14.9	35.31	F. E. Rose	do	do
	14.9	38.93	E. M. Ganong	do	do
	14.8	39.56	J. S. Maloney	St. Andrews	do
	12.7	41.98	Hunt & Greenlaw	do	Not adulterated; possibly traces of foreign fat.
	13.5	42.94	G. D. Grimmer	do	Not adulterated.
224	14.8		J. Nault	Three Rivers, Que.	Rancid and acid to litmus; fair.
227	14.05		L. T. Coressier	do	Rancid; yellow colour; acid reaction; fair.
228	15.24		E. Berard	do	Not very nice to taste or smell; pale colour; acid; too much water.
227	16.42		Z. Gauthier	do	Smell slightly rancid; yellow; acid reaction; fair.
227	16.07		Giroux & Pottisier ..	do	Pretty good taste and smell; pale colour; acid.
226	15.30		J. B. Dion	Quebec	Very little taste; pale colour; acid reaction; too much water; not very good.
233	16.53		E. Létourneaux	do	Smell and taste good; yellow; neutral; good.
234	16.42		Pierre Côté	do	Not nice taste or smell; pale colour; acid reaction; fair; too much water.
219	14.85		G. A. Brochee	Lévis	Fair taste and smell; pale colour; slightly acid; fairly good.
225	13.11		Goulet et frère	do	Slightly rancid; pale colour; slightly acid; fairly good.
226	13.23		C. Tanguay	do	Pretty good taste and smell; yellow colour; slightly acid; fairly good.

APPENDIX L.—INSPECTION OF

Date of Collection.	Name of Furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULT OF						
				Water.	Butter Fat.	Salt.	Curd.	Properties		
								Specific Gravity.	Melting Point.	
1894.	<i>Analyst, Dr. M. Fiset, Quebec—Con.</i>			p. c.	p. c.	p. c.	p. c.			
May 24.	J. Pageau, Tewkesbury, Que.	8208	13212	15.19	81.12	2.57	1.11	.8634	38.0	
do 24.	.....	8209	13213	11.24	85.21	2.99	0.55	.8637	39.0
do 24.	.....	8210	13214	7.72	88.15	2.90	1.23	.8636	35.0
do 24.	.....	8211	13215	9.89	87.45	1.77	0.89	.8640	37.5
do 24.	.....	8212	13216	10.86	85.85	2.39	0.91	.8641	33.5
	<i>Analyst, Dr. J. B. Edwards, Montreal.</i>									
do 21.	Langlois & Co., Montreal.	5572	13193	8.99	87.60	2.57	0.83	.867	.....
do 21.	W. Champagne do	5573	13194	8.42	86.14	2.90	2.54	.865	.....
do 21.	Langlois & Co. do	5574	13195	9.05	86.12	3.76	1.07	.865	.....
do 21.	Bell & Co. do	5575	13196	8.99	85.61	4.82	.58	.866	.....
do 21.	Langlois & Co. do	5576	13197	8.12	86.49	3.96	1.43	.867	.....
do 21.	McQueen & Co. do	5577	13198	6.66	85.52	6.91	.91	.864	.....
June 1.	J. Mulveny, Shipton, Quebec	5579	13217	9.61	85.50	4.10	.79	.865	.....
do 1.	J. Wheeler, Richmond do	5580	13218	11.24	83.82	3.73	1.21	.864	.....
do 1.	A. Lampros do do	5581	13219	15.04	73.32	10.40	1.24	.868	.....
do 1.	.....	5582	13220	10.84	80.71	4.36	4.03	.863	.....
do 1.	.....	5583	13221	14.07	82.55	2.06	1.32	.892	.....
do 1.	H. Porter, Brompton, Quebec	5584	13222	9.76	83.72	5.39	1.13	.864	.....
do 5.	H. Hibert, St. Cyprien.	5585	13223	8.50	86.39	3.10	2.01	.867	.....
do 5.	.....	5586	13224	9.58	85.98	3.70	.74	.867	.....
do 5.	P. Dupuis, St. Luc.	5587	13225	10.97	84.83	3.05	1.15	.866	.....
do 5.	.....	5588	13226	9.08	84.84	5.25	.83	.867	.....
do 5.	.....	5589	13227	8.97	82.00	6.99	2.04	.866	.....
	<i>Analyst, Dr. F. X. Vulade, Ottawa.</i>									
May 19.	.....	7264	12989	7.07	87.18	3.20	2.54	.865	.....
do 19.	.....	7265	12990	6.83	86.19	5.20	1.77	.864	.....
do 19.	.....	7266	12991	10.53	84.80	2.47	2.19	.864	.....
do 19.	.....	7267	12992	8.03	84.88	4.81	2.28	.866	.....
do 19.	.....	7268	12993	6.92	80.23	2.05	1.80	.873	.....
do 19.	.....	7269	12994	7.61	87.47	2.56	2.35	.864	.....
do 19.	.....	7270	12995	7.28	89.51	2.08	1.12	.863	.....
do 19.	.....	7271	12996	5.92	90.37	1.71	1.99	.864	.....
do 19.	.....	7272	12997	8.83	87.20	1.89	2.08	.864	.....
do 19.	.....	7273	12998	10.53	84.88	2.97	1.61	.866	.....
do 19.	.....	7274	12999	8.93	80.39	8.95	1.73	.865	.....
do 19.	.....	7275	13000	7.73	87.72	2.83	1.72	.867	.....

Inland Revenue—Adulteration of Food.

BUTTER—Tabulated Statement—Continued.

ANALYSIS.			Vendor.	Residence.	Analyst's Observations.
of the Fat.					
Kœtstorfer No.	Reichert No.	Iodine No.			
		p. c.			
225	15·70	.....	G. Drolet.....	Quebec.....	Taste and smell fair; yellow colour; slightly acid; too much water.
222	16·05	.....	P. Rousell.....	do.....	Taste and smell fair; yellow colour; good.
226	13·95	.....	do.....	do.....	Taste and smell not good; rather pale; slightly acid; not very good.
225	15·30	.....	E. Turcotte.....	do.....	Rancid; pale colour; pure.
226	14·50	.....	S. Smith.....	do.....	Taste and smell not good; pale colour; acid reaction; pure.
.....	30·30	40·74	Jos. Dagenais.....	Montreal.....	Genuine, with slight excess of water.
.....	32·5	38·87	G. Malepart.....	do.....	do
.....	30·15	37·54	Geo. Neil.....	do.....	do
.....	30·15	37·15	J. U. Rivet.....	do.....	do
.....	32·2	39·96	D. Corbeill.....	do.....	do
.....	26	37·67	J. Deslaurier.....	do.....	do
.....	28·5	43·99	John Parks.....	Richmond.....	do
.....	32·8	34·67	D. Bédard.....	do.....	do
.....	28·7	46·30	L. Gutras.....	do.....	Adulterated under Act; excess of salt and water and deficiency of butter fat.
.....	21·2	32·56	Bray Bros.....	Sherbrooke.....	Unadulterated, but contains excess of water.
.....	31·8	37·32	D. W. Levenson.....	do.....	do
.....	28·5	39·20	W. H. Fuller.....	do.....	do
.....	30·9	35·18	L. Moreau.....	St. Johns.....	do
.....	34·20	32·92	E. Courville.....	do.....	do
.....	.....	32·11	G. Dupuis.....	do.....	do
.....	31·51	39·51	P. Lagarde.....	Montreal.....	Genuine.
.....	28·5	36·14	J. Bruchise.....	do.....	do
.....	14·2	39·57	J. Hiscock.....	Kingston, Ont.....	Genuine.
.....	14·7	34·79	J. Ridden & Co.....	do.....	do
.....	14·3	33·39	J. Crawford.....	do.....	do
.....	16·5	34·17	J. J. Behan.....	do.....	do
.....	13·8	36·91	W. McConkey.....	Brockville.....	do
.....	14·1	36·86	R. R. Dowsley.....	do.....	do
.....	14·6	37·91	T. Brown.....	do.....	do
.....	14·3	36·61	T. A. Wood.....	do.....	do
.....	13·1	32·97	J. H. Bradley.....	Prescott.....	do
.....	15·2	39·33	D. McDermott.....	do.....	do
.....	15·1	42·19	C. Whitney.....	do.....	Fair; contains salt in excess and give high iodine number.
.....	14·8	33·52	R. A. Scott.....	do.....	Genuine.

APPENDIX L.—INSPECTION OF

Date of Collection.	Name of Furnisher, when ascertained.	No. of Analyst's Certificate.	No. of Sample.	RESULTS OF					
				Properties					
				Water.	Butter Fat.	Salt.	Curd.	Specific Gravity.	Melting Point.
1894.	<i>Analyst, Dr. W. H. Ellis, Toronto.</i>			p. c.	p. c.	p. c.	p. c.		
June 23		8408	13801	8.80	87.72	1.60	1.88		
do 23		8409	13802	11.69	84.90	1.29	2.12		
do 23		8410	13803	9.96	84.91	3.33	1.80		
do 23		8411	13804	9.48	86.25	2.62	1.65		
do 23		8412	13805	10.34	83.13	4.43	2.10		
do 23		8413	13806	8.98	87.00	2.51	1.51		
do 23		8414	13807	6.88	79.30	6.88	2.71		
do 23		8415	13808	11.52	82.68	3.92	1.88		
do 22		8416	13809	9.80	86.80	1.71	1.69		
do 23		8417	13810	8.50	87.10	2.17	2.23		
do 23		8418	13811	11.41	85.46	1.46	1.67		
do 23		8419	13812	9.74	84.89	3.94	1.43		
do 23		8420	13813	14.03	82.72	2.02	1.23		
do 23		8421	13814	12.56	83.90	1.25	2.29		
do 23		8422	13815	11.57	84.53	2.33	1.47		
	<i>Analyst, F. T. Harrison, London Ont.</i>								
June 23		6391	14062	9.86	82.76	6.48	.90	.8686	
do 23		6392	14063	9.85	84.50	4.46	1.19	.8686	
do 23		6393	14064	10.98	85.16	2.79	1.07	.8675	
do 23	J. Broderick, farmer	6394	14065	12.80	83.93	2.58	.69	.8688	
do 23	G. Overholt do	6395	14066	8.20	88.69	2.08	1.03	.8690	
do 23		6396	14067	10.92	84.87	3.83	.38	.8679	
do 23		6397	14072	15.48	80.00	3.64	.88	.8675	
do 23		6398	14073	11.28	82.42	5.26	1.04	.8679	
do 23	T. B. Adams, Harrow, Ont.	6399	14074	11.31	83.90	4.09	.70	.8678	
do 23	E. Zeller	6400	14075	8.66	84.03	6.48	.83	.8683	
do 23	W. Borrowman, Anderson, Ont.	6401	14076	13.70	75.50	9.51	1.28	.8680	
do 23		6402	14077	15.87	81.01	2.07	1.05	.8672	
do 23	Mrs. Brazill, Belle River, Ont.	6403	14078	16.12	75.64	7.33	.91	.8684	
	<i>Analyst, Prof. E. B. Kenrick, Winnipeg, Man.</i>								
June 4	Mrs. Platt, Letellier, Man.	6744	14510	9.92	83.77	6.04	1.17		
do 4	Mrs. McCarthy, Emerson	6745	14511	14.68	81.36	2.36	1.60		
do 4	Frany & Harder, Silverfield	6746	14512	9.81	86.73	2.32	1.14		
do 4		6747	14513	10.69	81.53	6.11	1.67		
do 4	Mrs. R. Coates, Silver Plains.	6748	14514	12.70	80.78	5.22	1.30		
do 4	Mrs. T. Best, Morris.	6749	14515	15.07	81.27	2.14	1.52		
do 4		6750	14516	8.60	85.83	4.19	1.38		
do 4		6751	14517	11.73	84.95	2.07	1.25		
do 4	Sutherland, Winnipeg	6752	14518	8.52	87.82	2.18	1.48		
do 4	Mrs. Cook, Headingby	6753	14519	11.02	85.18	2.40	1.40		
do 4	S. Corbett, Springfield	6754	14520	10.79	85.44	2.37	1.40		
do 4		6755	14521	9.90	87.78	0.89	1.43		

Inland Revenue—Adulteration of Food.

BUTTER—Tabulated Statement—*Concluded.*

ANALYSIS.			Vendor.	Residence.	Analyst's Observations.
of the Fat.					
Koeftatorfer No.	Reichert No.	Iodine No.			
		p. c.			
.....	3·34	40·8	P. J. Haffey	Toronto	Adulterated with foreign fat.
.....	4·66	36·5	M. Mulligan	do	Doubtful.
.....	4·50	38·9	W. M. Thompson	do	do
.....	5·76	34·0	J. Nelson	do	Genuine.
.....	6·66	34·9	Kelly Bros.	do	do
.....	4·98	35·2	W. Forster	do	do
.....	2·97	38·2	W. H. Wing	do	Adulterated with foreign fat.
.....	5·77	33·3	J. Taylor	do	Genuine.
.....	6·18	34·7	W. Forster	do	do
.....	5·91	38·6	Graydon's Grocery	do	do
.....	6·35	26·5	P. Macdonald	do	do
.....	5·99	41·5	J. Carson	do	do
.....	5·79	35·8	W. Fry & Co.	do	do
.....	5·89	35·2	Brown & Maxwell	do	do
.....	4·60	37·7	Kelly Bros.	do	Doubtful.
2·44	16·56	29·05	L. K. Binkley	Niagara Falls	
2·43	14·79	32·66	Wm. Spence	do	
2·44	13·69	28·73	A. Buckley	do	
2·42	15·37	40·08	Merrinan Bros.	St. Catherines	
2·39	15·55	29·93	J. M. Butler	do	
2·46	14·36	36·59	R. T. Hill	do	
2·46	15·12	41·63	J. Kennedy	Sarnia	
2·45	15·33	34·09	R. Kennedy	do	
2·43	14·63	39·55	F. Hutton	Windsor	
2·54	12·41	41·59	F. H. Mann	do	
2·48	15·50	41·84	C. R. Dougall	do	Adulterated by addition of excessive amount
2·44	14·83	36·86	W. J. Cherney	do	[of salt and water.]
2·45	14·53	39·45	C. A. Edsell	do	
.....	15·97	29·80	McGirr & Hinton	Emerson, Man	Genuine.
.....	15·66	36·48	McLean & McBean	do	do
.....	15·78	34·14	E. Prineer & Co	Gretna	do
.....	15·09	36·20	M. Woodenger	do	do
.....	15·92	34·95	C. J. Kircher	Morris	do
.....	15·84	35·60	Laurie Bros.	do	do
.....	14·19	39·42	Schultz	Morden	do
.....	14·60	41·96	T. M. Tobias	do	do
.....	14·17	39·26	S. Ling	Winnipeg	do
.....	12·20	41·81	Hodges & Co	do	do
.....	15·37	38·06	John Dyke	do	do
.....	15·75	35·55	A. Gibson	do	do

APPENDIX M.

BULLETIN No. 37.—FERTILIZERS—1894.

E. MIALI, Esq.,

Commissioner of Inland Revenue.

SIR,—I have to submit herewith a statement of the results obtained in this laboratory in analysing the samples of Fertilizers which, in accordance with the requirements of the Fertilizers Act, have been sent to the department by their manufacturers or vendors as representing the artificial manures they propose to offer for sale in the Dominion during the present year. I subjoin a few remarks and explanations, some of which have been given in former reports, in order to save the necessity of referring to the latter, and for the purpose of making the statement more easily understood.

The number of the different brands of fertilizers analysed in 1893 was 82; this year it is reduced to 60, owing chiefly to some American manufacturers having failed to send in samples. In former statements a column was given, for the information of the public, showing the cash selling price per ton. There has always been difficulty in obtaining this information from the dealers, and this year only two of them gave the necessary figures. On this account, and because the Act does not require such publication, the column in question has been left out of the present table. On the other hand, because the Act prescribes it, the relative value of each fertilizer is given, and the same system of calculating this, which was adopted in former reports, has been continued. No change has been made in the values of the fertilizing constituents, and it thus becomes possible to ascertain from year to year whether any change has taken place in the value of any particular grade. The rates at which the fertilizing constituents have been estimated, and which correspond roughly to their values in wholesale (Canadian) markets, are as follows:—

	Cts. per Lb.
Nitrogen in ammonia salts or nitrates	14
Organic nitrogen in ground bone fish blood or tankage	14
Phosphoric acid, soluble in water	7
do soluble in ammonium citrate	6½
do insoluble in ground bone and tankage	6
do insoluble in Thomas Phosphate powder	2½
do insoluble in ground rock phosphate	2
Potash, contained in potashes or pearl ash	7
do in wood ashes	6
do in high grade potash salts	5¼
do in kainite	3½

Since it is impossible in analysis to distinguish between insoluble phosphoric acid from apatite or rock phosphate and that from bone, the declaration of the manufacturer as regards the materials used is accepted and the calculation based upon it. This declaration also affects the percentage stated in the column headed "Phosphoric acid available," the insoluble phosphoric acid from apatite not being reckoned as "available." With reference to the column in which the *relative* values are stated it is necessary to remark that these figures afford no indication of the prices at which the goods ought to be sold to the consumer, because, among other reasons, no regard whatever has been paid to the cost of manufacturing or mixing. The headings of the other columns in the table do not require further explanation.

In a former report (Bulletin No. 22, 1891) I made some reference to the manner in which the cost of fertilizers is increased by the admixture of nitrogenous ingredients, and pointed out that careful farmers might save this cost by properly caring for the stock of nitrogen on their farms, and that this might even be increased by cultivating those crops which have the power of appropriating the nitrogen of the atmosphere. Nevertheless,

Inland Revenue—Adulteration of Food.

the fertilizer manufacturers still seem to be under the necessity of supplying this element in considerable quantity in their goods, and of charging for it. In the case of the mixed fertilizers mentioned in the statement, this extra charge varies from \$8 to \$14 per ton, which the farmer must pay if he purchases, and which he can readily save in his own stables or produce upon his own farm.

It may safely be assumed that 50 per cent of the nitrogen contained in barnyard manure returns unutilized to the atmosphere or is otherwise lost by careless treatment. Supposing that an average quantity of 36,000 pounds is produced annually by each animal, and that it contains 0.4 per cent of nitrogen, it follows that a loss of 72 pounds of nitrogen worth \$10.08 takes place for each head of cattle. This loss can be prevented by daily strewing the stables with two pounds ground plaster for each head, and allowing it to mix and be removed with the manure. By doing this the farmer would be relieved from the necessity of purchasing the nitrogen of artificial fertilizers.

Not only can the farmer thus save almost the whole of the nitrogen contained in the fodder fed to his cattle, but he can actually increase the stock of it stored away in his fields, agricultural products and manure heaps by a judicious course of crop rotation. For more than a century agricultural chemists have discussed the question as to whether free atmospheric nitrogen can be assimilated by plants, but it may now be regarded as perfectly settled in the affirmative, if regard is had only to the plants of the order leguminosæ, such as beans, peas, lentils, vetches, clovers, alfalfa, serradella, &c. Even the great English agriculturists, Sir J. B. Lawes and Sir Henry Gilbert, who had previously been of an opposite opinion, have now admitted that this appropriation of nitrogen has been completely proved. This acknowledgment was made by Sir Henry Gilbert at a great meeting of agricultural chemists held at Halle, in Germany, in September, 1891. Thus, modern research has confirmed not only modern agricultural practice, but also the experience of antiquity, for W. Strecker has pointed out a passage in Pliny, which says: "Lupines require so little manure that they in fact replace it; vetches make the land more fertile. Corn should be sown where previously lupines or vetches have stood, because these enrich the land."

It is not, however, to be supposed that this utilization of atmospheric nitrogen by leguminous plants can take place upon very poor soils or upon those destitute of the inorganic constituents which they require. The latter must in such cases be supplied in the shape of potash with some phosphoric acid, as was done with great success by Schultz of Lupitz (see Bulletin No. 22, p. 12). It is somewhat remarkable that among the special fertilizers offered for sale this year, there are none intended more particularly for leguminous plants. A mixture of this sort might be made up very cheaply from kainite and plain superphosphate, and, in my opinion, would prove very advantageous to our farmers in cultivating beans, peas, clovers, &c., on impoverished soils.

In such cases there is, according to the most recent investigations, no necessity for supplying nitrogen in the fertilizer. The atmosphere stands ready to furnish the farmer gratis with all the *organic* constituents which his crops require, provided that he will exercise skill and intelligence in appropriating nitrogen, retaining it on his farm, and utilizing it in a proper rotation of crops. If he does this, all that is necessary for him to provide, in order to replace the losses which his farm sustains from the sale of stock or produce, are the inorganic or mineral constituents of these, and especially the phosphoric acid and potash.

The present report has been prepared for submission to you with as little loss of time as possible. I beg to recommend its immediate publication, so that it may be in the hands both of manufacturers and farmers before the latter make their spring purchases of fertilizers.

I have the honour to be, sir,
Your obedient servant,

THOMAS MACFARLANE,
Chief Analyst.

5th March, 1894.

STATEMENT of the Results of examining 60 Samples

No. of Sample.	Name of Manufacturer.	By whom sent.	From what materials produced.	Name or Brand of Fertilisers.
407	Clark's Cove Fertilizer Co.	C. O. Dewey, agent, Boston, Mass.		King Philip guano for potatoes Guaranteed..... Found.....
408	H. & E. Albert, London, Eng.	The Steele, Briggs, Marcon Seed Co., Toronto.		Thomas Phosphate Powder.. Guaranteed..... Found.....
409	Pacific Guano Co., Boston, Mass.	Geo. Hatt & Sons, Fredericton, N.B.		Soluble Pacific Guano..... Guaranteed..... Found.....
410	Jas. L. Grant & Co., Ingersoll, Ont.	Jas. L. Grant & Co., Ingersoll, Ont.	Blood, tankage and bone from the hog.	Ingersoll Fertilizer..... Guaranteed..... Found.....
411	do ..	do ..	do with certain proportions of potash salts.	Champion Fertilizer .. Guaranteed..... Found.....
412	The Standard Fertilizer and Chemical Co., Smith's Falls, Ont.	R. J. Brodie, manager.	Apatite, bone char and sulphuric acid.	Superphosphate of Lime Guaranteed..... Found.....
413	do ..	do ..	Apatite, sulphuric acid, bone char, bone meal, ammonia, potash and magnesia salts and nitrate of soda.	Special Fertilizer..... Guaranteed..... Found.....
414	do ..	do ..	do	No. 1 Fertilizer..... Guaranteed..... Found.....
415	do ..	do ..	do	Fruit Tree Fertilizer..... Guaranteed..... Found.....
416	do ..	do ..	do	Standard Fertilizer..... Guaranteed..... Found.....
417	do ..	do ..	Dried blood tankage, bone, phosphate plaster and potash salts.	XXX Fertilizer .. Guaranteed..... Found.....
418	do ..	do ..	Pure ground bone.	Bone Meal..... Guaranteed..... Found.....
419	do ..	do ..		Nitrate of Soda..... Guaranteed..... Found.....
420	The Nichols Chemical Co., Capelton, P.Q.	Manufacturers.....	Canadian apatite dissolved in sulphuric acid, sulphate of ammonia and muriate of potash.	No. 1 Superphosphate..... Guaranteed..... Found.....
421	do ..	do ..	do	Capelton Superphosphate. . Guaranteed..... Found.....
422	do ..	do ..	do	Reliance..... Guaranteed..... Found.....
423	do ..	do ..	do	Victor..... Guaranteed..... Found.....
424	do ..	do ..	do	Royal Canadian Guaranteed..... Found.....

Inland Revenue—Adulteration of Food.

of Commercial Fertilizers registered in 1894.

No. of Sample.	RESULTS OF ANALYSIS.									
	Nitrogen.		Phosphoric Acid.					Potash.	Moisture.	Relative value per ton of 2,000 lbs.
	Total including that of Nitric Acid or Ammonia if present.	Total calculated as Ammonia.	Soluble in Water.	Reverted or Citrate Soluble.	Insoluble.	Total.	Total available.			
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		¢ cts.
407	3.47	1½ to 2½ 4.21	5 to 7 6.23	1½ to 2 2.40	1½ to 2 2.24	3 to 11 10.87	6½ to 9 8.63	3 to 4 6.48	8.45		29 26
408	1.89	2.30	0.0	8.57	7.80	16.37			0.25	20 33
409	3.95	2.75 to 3.50 4.79	7 to 9 5.88	1½ to 3 4.61	2 to 4 1.08	10½ to 16 11.57		2 to 3½ 1.68	15 to 18.75 0.50	27 65
410	6.68 7.97	9.00 9.66	Trace.	5.95	8.76	3.90 14.71	14.71		6.80 8.05	40 57
411	6.68 7.68	9.00 9.33	Trace.	5.11	7.36	3.90 12.47	12.47	5.00 3.15	6.80 7.45	39 28
412	1.84	2.23	11.64	2.12	5.56	14 to 16 19.32	12 to 14 13.76		5.95	26 43
413	3.33	3½ to 4½ 4.04	8.76	1.05	3.62	10 to 12 13.43	8 to 10 9.81	6 to 9 8.05	4.45	34 86
414	2.41	1½ to 2½ 2.93	10.68	1.47	5.12	12 to 14 17.27	9 to 11 12.15	1 to 1½ 1.95	5.40	27 61
415	2.74	2 to 3 3.33	8.64	1.40	3.84	10 to 12 13.88	8 to 10 10.04	8 to 10 9.81	4.30	33 53
416	2.78	2½ to 3½ 3.37	9.72	1.67	4.60	11 to 13 15.99	9 to 11 11.39	2 to 2½ 2.82	5.01	28 36
417	4.53	3.00 5.50	3.65	0.83	4.28	8.76	5 4.48	2 2.45	7.55	26 71
418	5.44	4½ 6.61	0.96	6.40	13.24	23½ 20.60	20.60		5.30	40 88
419	15 to 16 14.49	17.60							0.20	38 57
420			10.87	2.24	4.16	17.27	11 to 14 13.11		12.00	19 79
421			4.60	4.54	3.01	12.15	8 to 10 9.14		11.75	13 54
422	2.14	2 to 3 2.60	2.68	4.80	2.56	10.04	6 to 7 7.48	2 to 3 2.55	12.70	19 68
423	2.19	2 to 3 2.66	7.36	1.28	3.32	11.96	7 to 9 8.64	3 to 4 3.57	10.50	23 17
424	3.48	4 to 5 4.22	7.80	1.79	2.24	11.83	9 to 11 9.59	5 to 6 5.33	9.50	29 57

STATEMENT of the results of Examining 60 Samples

No. of Sample.	Name of Manufacturer.	By whom sent.	From what materials produced.	Name or Brand of Fertilizer.
425	The Nichols Chemical Co., Capelton, P.Q. ...	Manufacturers	Bones	Bone Phosphate .. Guaranteed..... Found
426	W. Davies Co., Limited, 130 King street west, Toronto.	do	Blood, bones and tankage.	Compound Fertilizers. Guaranteed..... Found
427	The Pidgeon Fertilizer Co., Windsor, N.S.	do	Bones, bone char, sulphuric acid, nitrate of soda, blood and potash salts.	Eureka Phosphate..... Guaranteed..... Found
428	do ..	do	do ..	Eureka Potato Manure..... Guaranteed..... Found
429	do ..	do	Bones	Ground Bone..... Guaranteed..... Found
430	The Canadian Chemical Mfg. Co., London, Ont.	do	Calcium superphosphate from Canadian apatite and sulphuric acid, sulphate of ammonia, sulphate of potassium and sulphate of sodium.	Superphosphate Fer. No. 1.. Guaranteed..... Found.....
431	do ..	do	do ..	Prolific Brand Complete Fertilizer. Guaranteed..... Found
432	do ..	do	do ..	Challenge Brand High Grade Complete Fertilizer. Guaranteed..... Found
433	Thos. Reid, St. John, N.B.	do .....	.....	Superphosphate..... Guaranteed..... Found
434	G. C. Miller, Middleton, N.S.	do	Ground bone, dissolved bone, nitrate of soda and nitrate of potash.	Miller's Complete Bone Fertilizer. Guaranteed..... Found
435	do ..	do	Fine bone, dissolved bone black, nitrate of soda and muriate of potash.	Miller's Special Bone Fertilizer for Fruit and Potatoes. Guaranteed..... Found
436	do ..	do	Dissolved bone, dissolved bone black, nitrate of soda and sulphate of potash.	Miller's Special Potato Fertilizer. Guaranteed..... Found
437	Henry Salter, Hantsport, Hants County, N.S.	do	Bone meal, sulphuric acid, potash.	Excelsior Orchard Brand... Guaranteed..... Found
438	do ..	do	Nitrate of soda, sulphate of ammonia, hardwood ashes and ground gypsum.	Excelsior Potato Fertilizer. Guaranteed..... Found
439	S. Archibald & Sons, Truro, N.S.	do	Bones	Archibald's Ground Bone... Guaranteed..... Found

Inland Revenue—Adulteration of Food.

of Commercial Fertilizers registered in 1894—*Continued.*

RESULTS OF ANALYSIS.										
No. of Sample.	Nitrogen.		Phosphoric Acid.					Potash.	Moisture.	Relative value per ton of 2,000 lbs.
	Total, including that of Nitric Acid or Ammonia if present.	Total calculated as Ammonia.	Soluble in Water.	Reverted or Citrate Soluble.	Insoluble.	Total.	Total available.			
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.			
425			14·07	0·32			15 to 17 14·39		17·00	20 15
426	7·16 7·04	8·70 8·55				8·00 9·16	9·16	0·37	9·60 9·07	32 01
427	2·56	3 to 4 3·11	6 to 8 3·52	10 to 12 1·60	2·24	7·36	7·36	2½ to 3 1·24	15·90	18 17
428	3·21	4 to 5 3·90	2·56	1·02	2·30	5·88	5 to 6 5·88	6 to 8 4·11	12·40	20 98
429	3·98	3·05 to 4 4·83		7·68	16·44	23½ to 24 24·12	24·12	01 to 02	9·65	40 79
430			8·12	1·80	6·20	16·12	11 to 13 9·92		14·85	16 19
431										
432	2·04	2·00 2·48	4·48	1·60	3·52	9·60	6 to 7 6·08	2 to 3 1·87	6·65	17 43
433	2·59	2 to 3 3·14	4·92	1·47	3·84	10·23	7 to 9 6·39	3 to 4 3·22	7·45	20 97
434	2·91	5·95 3·55	0·39 0·16	2·96 4·73	10·15 7·55	13·50 12·44	12·44	1·39	24·15	25 04
435	3·29	3½ to 4½ 4·00	0·45	4·67	14·07	19·25 to 21 19·19	19·19	2½ to 3 1·74	7·10	34 62
436	2·85	3 to 4 3·47	3·65	3·70	8·96	16·25 to 17 16·31	16·31	6 to 8 3·96	10·00	32 81
437	2·51	4 to 5 3·05	7·99			9 to 11 7·99	8 to 10 7·99	6½ to 8 5·79	17·40	22 30
438	1·41	1·71	Trace.	3·04	1·92	4·96	4·96	5·83	10·25	18 32
439	0·71	0·86	2·40	1·12	0·16	3·68	3·68	3·18	10·60	10 34
	3·69	4·45		6·08	12·79	18·87	18·87		8·90	33 58

STATEMENT of the results of examining 60 Samples

No. of Sample.	Name of Manufacturer.	By whom sent.	From what materials produced.	Name or Brand of Fertilizer.
440	S. Archibald & Sons, Truro, N.S.	Manufacturers	Bone char, nitrate of soda, potash, ashes and plaster.	Archibald's Potato Phosphate Guaranteed Found
441	do	do	do	Archibald's General Fertilizer. Guaranteed Found
442	F. Rowlin, Hamilton, Ont.	do	Bone, blood, meat, gypsum and potash.	Rowlin's Complete Fertilizer Guaranteed Found
443	do	do		Bone Meal. Guaranteed Found
445	do	do	do	Potato Manure. Guaranteed Found
447	W. A. Freeman, Hamilton, Ont.	do		Freeman's Pure Bone Meal. Guaranteed Found
448	do	do	Dried blood, bone, nitrate of soda, sulphuric acid, sulphates of potash and ammonia.	Freeman's Dissolved Bone. Guaranteed Found
449	do	do	do	Freeman's Sure Growth. Guaranteed Found
450	do	do	do	Freeman's Park and Lawn Dressing. Guaranteed Found
451	do	do	do	Freeman's Potato Manure. Guaranteed Found
452	do	do	do	Freeman's Bone and Potash. Guaranteed Found
453	do	do	do	Freeman's Celery and Early Vegetable. Guaranteed Found
454	do	do	do	Freeman's Non-acid Fertilizer. Guaranteed Found
455	do	do	do	Freeman's Grain and Grass Manure. Guaranteed Found
456		The Steele, Briggs, Marcon Seed Co., Toronto, Ont.		Nitrate of Soda. Guaranteed Found
457		do	Bone black, sulphuric acid, sulphate of ammonia, sulphate of potash.	Lawn Fertilizer. Guaranteed Found
458		do	do	Standard Plant Food. Guaranteed Found

Inland Revenue—Adulteration of Food.

of Commercial Fertilizers registered in 1894—*Continued.*

No. of Sample.	RESULTS OF ANALYSIS.									Relative value per ton of 2,000 lbs.
	Nitrogen.		Phosphoric Acid.					Potash.	Moisture.	
	Total including that of Nitric Acid or Ammonia, if present.	Total calculated as Ammonia.	Soluble in Water.	Reverted or Citrate Soluble.	Insoluble.	Total.	Total available.			
p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	\$ cts.
440	2.19	2.66	0.77	1.92	2.24	4.93	4.93	5.67	20.40	18 35
441	1.76	2.14	1.41	1.66	2.05	5.12	5.12	4.21	21.30	15 94
442	4.57	6 to 7 5.55	Traces.	2.72	2.88	10 to 11 5.60	5.60	4 to 5 5.99	7.75	25 29
443	2.98	2½ 3.62	Traces.	8.15	12.48	28.30 20.63	20.63	0.12	9.45	40 84
445	3.98	4 to 5 4.83	Traces.	2.43	2.88	8 to 10 5.31	5.31	5 to 7 9.52	6.85	28 76
448	5.24	3 to 5 6.37	0.08	6.72	16.71	23 to 25 23.51	23.51		7.60	43 57
447	4.05	3 to 4 4.91	5.44	5.29	4.79	18 to 20 15.52	15.52		2.75	31 59
449	4.12	3½ to 5 5.01	5.99	3.93	1.92	8 to 10 11.84	11.84	3 to 4 5.18	2.25	32 79
450	4.68	2½ to 4 5.69	4.64	2.08	0.48	8 to 10 7.20	7.20	2 to 3½ 3.57	12.05	26 62
451	3.50	3 to 4 4.25	5.60	3.36	1.60	8 to 10 10.56	10.56	5 to 7 8.69	4.55	33 05
452	2.46	2 to 3 2.99	3.92	2.08	3.28	9 to 10 9.28	9.28	6 to 8 16.18	1.55	36 01
453	6.56	6 to 8 7.97	5.76	0.57	0.79	9 to 10 7.12	7.12	6 to 8 10.18	1.55	42 19
454	4.92	5 to 6 5.98	1.12	3.52	9.76	12 to 14 14.40	14.40	3 to 4 0.99	3.80	32 68
455	2.26	2 to 3 2.75	4.32	2.64	0.96	9 to 11 7.92	7.92	1 to 2 4.95	2.30	22 16
456	15.12	18.36							0.15	42 34
457	2.17	2.64	1.28	4.80	2.56	8.64	8.64	1.89	15.40	17 23
458	3.49	4.23	1.92	4.16	2.40	8.48	8.48	3.32	7.70	22 23

STATEMENT of the results of Examining 60 Samples

No. of sample.	Name of Manufacturer.	By whom sent.	From what materials produced.	Name or Brand of Fertilizer.
459	The Nova Scotia Fertilizer Co., Halifax, N.S.	Manufacturers	Bone, ammoniates, potash and sulphuric acid.	Potato Phosphates..... Guaranteed.....
460	do	do	do	Found..... Strawberry Phosphate..... Guaranteed.....
461	do	do	do	Found..... Apple Tree Phosphate..... Guaranteed.....
462	Jackson Johnson, Warkworth, Ont.	do	Bone and nitrate of soda.	Johnson's Canadian Bone Meal No. 5, for Lawns and Flowers. Guaranteed..... Found.....
463	do	do	do	Johnson's Canadian Bone Meal No. 7. Guaranteed..... Found.....
466	The Nichols Chemical Co., Capelton, Que.	do .....	.....	Special High Grade Superphosphate. Guaranteed..... Found.....
467	Bradley Fertilizer Co., Boston, Mass.	do	Bone, bone black, phosphatic guano, dried blood, meat and fish, sulphate of ammonia, nitrate of soda, sulphate of potash and sulphuric acid.	Bradley's XL Superphosphate. Guaranteed..... Found.....
468	do	do	nitrate of soda, sulphate of potash and sulphuric acid.	BD Sea-fowl Guano..... Guaranteed..... Found.....
469	Nova Scotia Fertilizer Co., Halifax, N.S.	do	Bone, ammoniates, potash, sulphuric acid.	Ceres Superphosphate..... Guaranteed..... Found.....
470	W. P. Churchill, Brooklyn, Yarmouth Co., N.S.	do	Ground Bone..... Guaranteed..... Found.....

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of Commercial Fertilizers registered in 1894—*Concluded.*

No. of Sample.	RESULTS OF ANALYSIS.									Relative value per ton of 2,000 lbs.	
	Nitrogen.		Phosphoric Acid.					Potash.	Moisture.		
	Total, including that of Nitric Acid or Ammonia if present.	Total calculated as Ammonia.	Soluble in Water.	Reverted or Citrate Soluble.	Insoluble.	Total.	Total available.				
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	\$ cts.	
459		3.71 to 4.24						4.70 to 5.21			
	2.89	3.52	3.20	0.82	3.97	7.99	7.99	4.81	17.45	23 45	
460		2.02 to 2.65						6.50 to 8.02			
	2.25	2.73	3.33	1.27	2.56	7.16	7.16	7.55	15.50	23 81	
461		3.25 to 4.03						6.53 to 8.00			
	2.92	3.54	3.33	1.34	2.69	7.36	7.36	6.93	16.95	23 29	
462											
	8.22	9.98		4.79	11.20	15.99	15.99		7.75	42 68	
463											
	4.04	4.91		6.40	15.03	21.43	21.43		9.05	37 67	
466											
	0.30	0.38	13.76	3.35	4.32	21.43	17.11	0.50	8.75	26 71	
467											
	2.07 to 2.90	2½ to 3½				10 to 12		1 to 2			
	2.10	2.55	8.32	1.12	1.76	11.20	11.20	2.16	13.65	23 47	
468											
	1.86	2½ to 3½	6 to 8	2.08	1.44	10 to 12	8 to 10	1½ to 2½	15.30	20 52	
469											
	2.36	2.01 to 2.68	3.33	1.98	5.24	10.55	10.55	2.14 to 2.44	12.15	22 12	
		2.87						1.89			
470											
	3.80	4.62		3.39	17.08	20.47	20.47		8.60	35 55	

APPENDIX N.

BULLETIN No. 38.—WINES.

E. MIALL, Esq.,
Commissioner of Inland Revenue.

SIR,—In accordance with instructions issued by you to the Food Inspectors in November, 1893, and January, 1894, a considerable number of samples of native and imported wines were collected from dealers in the most important of the Inland Revenue districts, and submitted to the local analysts for examination. The precise number of samples thus collected and analysed were as follows :—

In Halifax	18
St. John	12
Quebec	12
Montreal	17
Ottawa	12
Toronto	15
London	12
Winnipeg	12
Total	<u>110</u>

The certificates from the analysts give in most cases their opinions as regards the nature or purity of the wines examined, which opinions may be roughly classified as follows :—

Genuine, pure, unadulterated	50
Fortified, sweetened, good, doubtful, and otherwise commented on	44
Adulterated	7
No opinion expressed	9
Total	<u>110</u>

From this statement and the nature of the opinions themselves, the conclusion may fairly be drawn that different standards of purity must have been adopted by the different analysts, and the absence of opinion in some cases may be supposed to indicate the absence of a standard. These inferences are quite in accordance with the facts, for there is no standard mentioned in the suggestions to analysts (G. 120) issued in 1884, nor have there since been any steps taken to “establish a standard of quality for or fix the limits of variability” in wines by Order in Council, as provided for in section 19 of the Adulteration Act. It does not appear that the public and the analysts are any better off, as regards a legal wine standard, in England or the United States than they are in Canada. It is otherwise on the Continent of Europe where laws regulating this subject have been passed in France, Germany and other countries.

The main provisions of the French law of 1889 are the following :—1. It is forbidden to sell, ship, send or offer for sale under the name of “wine” anything else than the product of the fermentation of fresh grapes. 2. The product of the fermentation of the “marc” or murk (residual skins, seeds, stalks, &c.) of fresh grapes with water, with or without the addition of sugar, and also the mixtures of this product with wine in any proportion shall not be shipped, sent, sold or offered for sale unless under the name of “Murk Wine” (“Vin de Marc”) or “Sugar Wine” (“Vin de Sucre”). 3. The product of the fermentation of dried grapes with water shall only be sold, shipped or offered for

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sale under the name of "Vin de raisins secs." This provision applies to any blends of this product with true wine in any proportion 4. The barrels and vessels which contain "sugar wine" or "raisin wine" must be marked with these names in large characters. 5. The papers and permits used for, or which accompany shipments of wine, sugar wine and raisin wine, must be of different colours. 6. If the fermentation product or distillation product of wheat, rice, barley or any other such material is added to wine, sugar wine, or raisin wine, this is to be regarded as an adulteration of food.

The German law of 1892 does not appear to be quite as strict as the French, because the use of sugar to a certain slight extent is permitted without destroying the right of the product to be called "wine." The name of "natural wine" (Naturwein) is given to those products of the fermentation of grape juice which have received no addition whatever of sugar or spirit.

The general tendency of the present time, among the authorities on the subject, seems to be towards regarding wine as "the beverage which is produced by alcoholic fermentation from the juice of fresh grapes without any addition." This is the definition adopted by the Swiss association of analytical chemists. König quotes with approval Neubauer's statement that "the name of 'wine' belongs exclusively to the beverage which is formed when the juice of grapes is allowed to ferment and clarify according to the rules of art and science." On the subject of its adulteration König makes the following remarks:—"It cannot be denied that many additions and methods of treating wine are capable of making it better rather than worse, but in this respect it is very difficult to draw a line. In the interest of sound manufacture (*i. e.* from natural material only) it is to be desired that such wines should be distinguishable by some terms or other from the genuine natural wines. It may be that then, for example, a sugar wine might be preferred to a real natural wine; just as many would rather use oleomargarine than rancid butter, but the article should be furnished with its right name so that every purchaser may know from it what is before him." The principle laid down in this quotation is simply that which underlies the clause in our Adulteration Act which provides that "Food shall be deemed to be adulterated within the meaning of the Act, if it is an intimation of, or is sold under the name of another article."

In the present report it is proposed to make a first contribution towards a better understanding of the subject, and to endeavour to point out how far the various wines sold in Canada have been fortified or made from added sugar. Other matters having reference to their composition, as for instance their acidity and also other possible adulterations will have to be considered on a future occasion. As in former reports a tabulated statement of the results of analysing the 110 samples together with those of 14 additional samples is here introduced. This statement is called Table I. and contains a column giving the serial numbers of such of the samples as have been made the subject of further calculation, the results of which are given in Table II. at the end of this report.

TABLE I.—Results of the Examination

Date of Collection.	Number of Sample.	Brand.	NAME AND ADDRESS OF		Specific Gravity.	
			Vendor.	Manufacturer or Furnisher as given by Vendor.	Of the Wine.	Spent Wine.
1893.			<i>Halifax, N. S.</i>			
January 3..	12784	Claret.....	J. R. Siteman, 115 f Up. Water St.	Said to be imported from Isl'd St. Pierre	1'0064	.....
	12785	Port..... "Grape Port"	D. Johnston, 102 Cornwallis St.	f Ontario Grape & Wine Company.	1'0367 1'0363	..... 1'0542
	12786	Pale Sherry.....	A. J. Finlay.....	Imported by J. Tobin & Co., Halifax.	0'9959 0'9964	..... 1'0167
	12787	Port.....	R. T. Forristall, Rot- tenburg St.	Imported by J. Tobin & Co., Halifax.	1'0200 1'0202	..... 1'0390
do 5..	12788	Sherry.....	F. T. Courtney, Brunswick St.	Pedro Domecq Xerly de la Frontern.	0'9874	.....
	12789	Pommard.....	Kelly & Glassie, Hol- lis St.	Clark & Co., Bor- deaux.	0'9934	.....
	12790	Sauterne..... Dry white wine.	Kelly & Glassie, Hol- lis St.	Clark & Co., Bor- deaux.	0'9966 0'9967	..... 1'0091
	12791	St. Julien.....	C. AuCoin, Water St	Champion & Co., Bordeaux.	'9944	.....
do 6..	12792	Chablis.....	A. McDougall & Son Hollis St.	Imported.	'9940	.....
	12793	St. Estephe.....	A. McDougall & Son, Hollis St.	de Pontaud & Co., Bordeaux.	'9959	.....
do 8..	12794	Batailley.. . . .	Dillon Bros., Sack- ville St.	Barton & Guestier, Bordeaux.	'9966	.....
	12795	French Port.....	J. Scott & Co., Gran- ville St.	.....	1'0074	.....
do 8 .	12796	Medoc.....	J. Scott & Co., Gran- ville St.	Barton, Bordeaux...	'9964	.....
do 9..	12797	Beaume.....	L. J. Hesslein.....	J. Calvet & Cie Beau- me, 1881.	'9943	.....
do 9..	12798	Sauterne	L. J. Hesslein.....	Barton, Bordeaux...	'9944	.....
do 9..	12799	Steinwein..... Dry white wine.	L. J. Hesslein.....	F. Krote, Coblentz..	'9925 0'9927	..... 1'0083
do 9..	12800	Chateau Florimon..	L. J. Hesslein.....	Imported, bottled by Vendor.	'9964	.....
do 9..	14201	Rhine wine (Lieb- fraumilch).	L. J. Hesslein.....	Schultz & Wagner, Frankfort.	'9977	.....

The first line in the case of each of the foregoing samples shows

The results on the second line, when given, are by A. McGill,

Inland Revenue—Adulteration of Food.

of 124 Samples of Wine.

RESULTS OF ANALYSIS.										REMARKS.	Serial No. of Samples in Table II.
Alcohol.			Total solids	Reducing Sugars as Dextrose.	Polarization.	Acidity.			Ash.		
By Wt.	By Vol.	P. c. Proof Spirit.				Total as Tartaric Acid.	Fixed as Tartaric Acid.	Volatile as Acetic acid.			
8·87	11·26	.....	2·16	.....	0·2	.....	0·43	0·20	.....	Unadulterated.	
11·34	14·80	.....	10·71	8·16	7·35	.....	0·24	0·31	.....	Doubtful.	18
11·46	14·18	24·85	11·995	9·501	.....	0·6300	0·090	0·432	.....	Foreign sugar used.	
13·75	17·26	.....	2·80	1·71	1·55	.....	0·24	0·15	.....	Doubtful.	8
13·23	16·33	28·62	3·235	2·051	.....	0·420	0·420	0·1068	.....	Alcohol added.	
12·47	16·02	.....	7·99	6·66	4·1	.....	0·34	0·11	.....	Doubtful.	11
12·31	15·21	26·66	8·90	7·855	.....	0·5025	0·360	0·114	.....	Alcohol added.	
15·59	19·40	.....	1·76	0·51	0·40	..	0·27	0·11	.....	Unadulterated.	
10·71	13·42	.....	2·02	.....	0·05	.....	0·35	0·10	.....	do	
8·21	10·32	.....	1·90	.....	0·0	.....	0·51	0·15	.....	do	
7·80	9·70	17·00	2·120	0·277	.....	0·6750	0·4365	0·1428	.....	do	
7·98	10·00	.....	1·46	.....	0·0	.....	0·26	0·20	.....	do	
8·98	11·26	.....	1·65	.....	0·2	.....	0·42	0·11	.....	do	
8·84	11·10	.....	1·99	.....	0·25	.....	0·35	0·18	.....	do	
7·73	9·70	.....	1·82	.....	0·19	.....	0·35	0·10	.....	do	
16·37	20·76	.....	6·02	6·06	6·25	.....	0·31	0·10	.....	Doubtful.	
8·34	10·48	.....	1·96	.....	0·0	.....	0·37	0·21	.....	Unadulterated.	
11·67	14·64	.....	2·53	.....	0·20	.....	0·35	0·17	.....	Doubtful.	
9·92	12·48	.....	2·68	0·77	0·95	.....	0·47	0·17	.....	do	
9·87	12·34	.....	1·59	.....	0·05	.....	0·40	0·17	.....	Unadulterated.	40
9·21	11·44	20·04	1·62	0·146	.....	0·5775	0·492	0·0684	.....	
7·85	9·86	.....	1·93	.....	0·10	.....	0·42	0·20	.....	do	
8·33	10·48	.....	2·18	0·15	0·20	.....	0·51	0·18	.....	do	

the results reported by Mr. Bowman, Official Analyst, Halifax.

Esquire, B. A., &c., Assistant to Chief Analyst, Ottawa.

TABLE I.—Results of the Examination

Date of Collection.	Number of Sample.	Brand.	NAME AND ADDRESS OF		Specific Gravity.	
			Vendor.	Manufacturer or Furnisher as given by Vendor.	Of the Wine.	Spent Wine.
<i>St. John, N.B.</i>						
Nov. 17..	6436	Sauternes.....	M. A. Finn.....	J. Calvet & Co. Bordeaux.	0·999 0·9997	1·0137
do 17..	6437	Champagne..... Mumms Extra.	J. Horn & Co.....	G. H. Mumm & Co., Reims.	1·011	1·0288
do 17..	6438	Rhine wine..... (Nierstein).	T. Furlong.....	Imported bottled....	0·996 0·9966	1·0091
do 18..	6439	Claret..... Superior Margaux.	T. J. Cronan.....	Johnston & Sons. Bordeaux.	0·997 0·9972	1·0096
do 18..	6440	Sauternes.....	T. J. Cronan.....	Hanappier & Co. Bordeaux.	1·00 1·0012	1·0133
do 18..	6441	Claret (Medoc) . . .	T. W. Bell Estate..	A. Paachie & Co. Cognac.	0·996 0·9959	1·0092
do 21..	6442	Native Red Wine St. Augustine.	E. G. Scoville.....	Pelee Island Wine Company.	1·029 1·0299	1·0457
	6443	Sweet Catawba....	E. G. Scoville. . . .	Pelee Island Wine Company.	1·034 1·0339	1·0472
	6444	Native Catawba....	F. Smith.....	Niag. Falls Wine Co. T. G. Bright & Co.	1·031 1·0306	1·0466
	6445	Native Red Wine. Concord.	F. Smith.....	Niag. Falls Wine Co. T. G. Bright & Co.	1·020 1·0197	1·0380
do 24..	6446	Native Wine (dark red).	J. Ward.....	Ontario Grape Growing and Wine Co., St. Catharines.	1·051 1·0441	1·0596
do 25..	6447	Champagne.	E. H. Conroy.....	Jules Mumm & Co., Reims.	1·004 1·0048	1·209

The first line in the case of each of the foregoing samples shows

The results, when given in the second line, are by A. McGill,

<i>Quebec.</i>						
Nov. 28..	13101	Claret—Chateau Houissant St. Estèphe.	H. Beatey.....		0·9971 0·9967	0·1005
	13102	Claret—St. Julien..	H. Beatey.....	Johnston & Sons Bordeaux.	0·9968 9·9971	1·0097
do 29..	13103	Native.....	L. N. Bergeron.....	A. C. Tournier, Sandwich, Ont.	1·0387	
					1·0384	1·0573

Inland Revenue—Adulteration of Food.

of 124 Samples of Wine—Continued.

RESULTS OF ANALYSIS.										Remarks.	Serial No. of Samples in Table II.
Alcohol.			Total solids	Reducing Sugars as Dextrose.	Polarization.	Acidity.			Ash.		
By wt.	By vol.	P.c. Proof Spirit.				Total as Tartaric Acid.	Fixed as Tartaric Acid.	Volatile as Acetic Acid.			
9.50	11.79	.....	2.83	0.833	0.3	.....	.....	.....	0.27	Not adulterated.	43
8.79	10.91	19.11	2.94	.....	.....	0.675	0.489	0.1488	.....	
9.71	12.05	.....	6.4	3.87	1.50	.....	.....	.....	0.1	do	64
9.86	12.22	21.42	6.410	.....	.....	.....	.....	.....	.....
7.93	9.86	.....	1.45	0.0	0.0	.....	.....	.....	0.23	do	68
7.67	9.54	16.71	1.990	0.107	.....	6.000	0.4990	0.0804	.....	
7.93	9.86	.....	1.75	0.625	0.10	.....	.....	.....	0.22	do	53
7.53	9.37	16.42	2.04	.....	.....	7.875	.....	.....	.....
7.93	9.86	.....	3.10	0.50	0.20	.....	.....	.....	0.22	do	49
8.21	10.21	17.89	2.930	.....	.....	0.7800	0.653	0.1020	.....	
9.36	11.61	.....	1.67	0.45	0.20	.....	.....	.....	0.24	do	25
8.36	10.38	18.20	1.950	0.165	.....	0.4950	0.363	0.1056	.....	
11.62	14.37	.....	11.31	10.0	2.5	.....	.....	.....	0.11	Not adulterated.	30
10.38	12.87	22.55	10.61	10.160	.....	0.6450	0.450	0.1920	.....	
10.85	13.43	.....	12.12	11.63	4.0	.....	.....	.....	0.10	Not adulterated.	16
9.93	12.31	21.57	11.63	10.840	.....	0.6830	0.3885	0.2350	.....	
13.15	16.24	.....	12.15	11.11	5.5	.....	.....	.....	0.15	Not adulterated.	23
11.77	14.56	25.51	11.19	9.965	.....	0.6375	0.4800	0.1260	.....	
13.92	17.17	.....	9.13	7.14	5.5	.....	.....	.....	0.14	Not adulterated.	20
10.69	15.12	27.21	8.57	7.00	.....	0.7120	0.5655	0.1176	.....	
13.15	16.24	.....	16.93	16.16	5.2	.....	.....	.....	0.28	Not adulterated.	24
11.00	13.62	23.86	14.590	12.833	.....	0.7515	0.5615	0.1524	.....	
11.62	14.37	.....	4.95	3.57	1.5	.....	.....	.....	0.10	Not adulterated.	
10.62	13.15	23.04	4.62	.....	.....	0.7125	0.5625	0.1200	.....	

the results reported by Mr. Best, Official Analyst, St. John, N.B.

Esq., B.A., etc., Assistant to Chief Analyst, Ottawa.

7.13	8.88	.....	2.204	.....	.....	.....	.....	0.253	.....	Alcohol rather deficient	51
8.21	10.21	17.89	2.265	0.282	.....	0.6375	0.4320	1.644	.....	
8.80	9.70	.....	1.94	.....	.....	.....	.....	0.187	.....	do do	71
7.33	9.13	15.99	2.232	.....	.....	0.5785	0.4455	0.1056	.....	
12.080	14.93	.....	11.654	9.596	.....	.....	.....	0.144	.....	Addition of foreign alcohol suspected. Sugar used.	17
11.690	14.46	25.34	12.257	11.230	.....	0.9450	0.7800	6.1320	.....	

TABLE I.—Results of the Examination

Date of Collection.	Number of Sample.	Brand.	NAME AND ADDRESS OF.			
			Vendor.	Manufacturer or Furnisher as given by Vendor.	Specific Gravity.	
					Of the Wine.	Spent Wine.
			<i>Quebec—Con.</i>			
Nov.	13104	Sauternes	L. N. Bergeron.....	Imported.....	0·9999	1·0003 1·0122
do	13105	Claret—St. Julien..	H. A. Paré.....	.....	0·9966	0·9971 1·0770
do	13106	Sauternes	M. W. Coleman.....	Vigneau and Cambour, Bordeaux.	0·9984	0·9991
do	13107	Native.....	M. W. Coleman.....	Ontario Grape Growing Company, St. Catharines.	1·002	1·0033 1·0180
do 30..	13108	Claret—St. Estephe.	J. McCone .....	.....	0·9949	0·9945 1·0106
do 30..	13109	Sauternes	A. Grenier	P. Lannière et Fils, Bordeaux.	1·0079	1·0085 1·0249
do 30..	13110	Graves	A. Grenier.....	N. Johnston & Sons.	0·9968	0·9977 1·0097
do 30..	13111	Madere.....	E. Roumilhac.....	Lacaux et frère, Limoges.	1·0019	1·0035 1·0268
do 30..	13112	Medoc Vieux.....	E. Roumilhac.....	Reby frères.....	0·9966	0·9971 1·0101

The first line in the case of each of the foregoing samples shows

Results when in the second line are by A. McGill,

			<i>Montreal.</i>			
Nov. 17..	13075	Claret, Medoc.....	L. S. Desrosier....	Sold as imported. Lanoire.	·9937	0·9938 1·0090
do 17..	13076	Claret, St. Julien..	A. A. Labrecque....	J. Brisson & Co. Bordeaux.	·9957	0·9953 1·0089
do 17..	13077	Claret, St. Estephe.	J. Marchand.....	Courtillon Lamonde & Co. Bordeaux.	·9953	0·9952 1·0081
do 17..	13078	Claret, Medoc.....	M. Rodrigue et Co..	Bottled by the Cie. Générale des Importations of Montreal.	·9952	0·9955 1·0131
do 21..	13079	Port Wine.....	F. Giroux.....	Bottled by Vendor..	1·0160	1·0131 1·0323
do 21..	13080	Sherry..	F. Giroux.....	do ..	·9954	0·9956 1·0169

Inland Revenue—Adulteration of Food.

of 124 Samples of Wine—*Continued.*

RESULTS OF ANALYSIS.										REMARKS.	Serial No. of Samples in Table II.
Alcohol.			Total solids.	Reducing Sugars as dextrose.	Polarization.	Acidity.			Ash.		
By wt.	By vol.	Per ct. Proof Spirit.				Total as Tartaric Acid.	Fixed as Tartaric Acid.	Volatile as Acetic acid.			
7·87	9·78	.....	2·524	0·528	.....	.....	.....	0·156	.....	Good.	66
7·67	9·54	16·71	3·250	0·865	.....	0·5025	0·2955	0·1656	.....	
6·57	8·18	.....	1·546	0·179	.....	.....	.....	0·252	.....	Slightly deficient in alcohol.	76
6·36	7·92	14·88	1·550	0·335	.....	0·4800	0·2865	0·1548	.....	
8·57	10·65	.....	2·396	0·709	.....	.....	.....	0·199	.....	Good.	50
8·29	10·30	18·04	2·355	0·447	.....	0·6525	0·4875	0·1320	.....	
13·35	16·24	.....	4·49	2·199	.....	.....	.....	0·288	.....	{ Alcohol and volatile acid rather high. Foreign sugar used and alcohol added.	10
12·54	15·49	27·15	5·358	3·403	.....	0·7275	0·4965	0·1848	.....	
9·07	11·26	.....	1·996	0·135	.....	.....	.....	0·228	.....	Rather much volatile acid.	61
7·73	9·62	16·86	2·105	0·233	.....	0·6375	0·4530	0·1476	.....	
10·77	13·34	.....	4·738	2·83	.....	.....	.....	0·207	.....	Alcohol and sugar high. Foreign sugar used.	37
9·57	11·87	20·81	5·588	4·531	.....	0·615	0·3915	0·1788	.....	
7·60	9·45	.....	1·81	0·300	.....	.....	.....	0·207	.....	Good.	70
7·47	9·29	16·28	2·025	0·374	.....	0·6825	0·5055	0·1416	.....	
14·82	18·25	.....	4·466	3·654	.....	.....	.....	0·210	.....	Good.	3
15·42	18·98	33·26	5·938	4·336	.....	0·5025	0·3135	0·1512	.....	Alcohol added.	
7·93	9·86	.....	2·002	0·12	.....	.....	.....	0·216	.....	Good.	69
7·53	9·37	16·42	2·110	0·190	.....	0·6150	.....	0·1260	.....	

the results reported by Dr. M. Fiset, Official Analyst, Quebec.

Esq., B. A., Assistant. to Chief Analyst, Ottawa.

9·43	10·70	.....	2·22	traces	.....	·535	·488	0·376	·222	Unadulterated.	38
9·50	11·79	20·65	2·050	0·293	.....	0·5475	0·4005	0·1176	.....	
7·33	9·13	.....	2·29	traces	.....	·648	·505	·115	·268	do	57
7·93	9·86	17·29	1·950	0·194	.....	0·6600	0·4050	0·2040	.....	
8·00	9·95	.....	1·892	traces	.....	·470	·383	·063	·284	do	63
7·73	9·62	16·86	1·670	0·181	.....	0·5475	0·3120	0·1884	.....	
8·35	10·38	.....	1·097	traces	.....	·822	·520	·249	·288	do but turning sour.	44
8·64	10·73	18·81	2·070	0·160	.....	0·7725	0·4005	0·2976	.....	
13·23	16·33	.....	9·66	.....	.....	·485	·347	·110	·248	Adulterated. Alcohol added.	9
12·77	15·77	27·64	7·980	7·117	.....	0·5025	0·3390	0·1308	.....	
14·00	17·26	.....	4·16	.....	.....	·517	·249	·213	·542	Adulteration doubtful. Alcohol added.	6
13·85	17·08	29·92	3·570	1·118	.....	0·4575	0·1200	0·2700	.....	

TABLE I.—Results of the Examination

Date of Collection.	Number of Samples.	Brand.	NAME AND ADDRESS OF		Specific Gravity.	
			Vendor.	Manufacturer or Furnisher as given by Vendor.	Of the Wine.	Spent Wine.
Nov. 21..	13081	Port Wine.....	<i>Montreal—Con.</i>		1·0104	
			T. Gauthier.....	Bottled by Vendor..	1·0061	1·0149
do 21..	13082	Sherry	Lévesque & Pichette.	do ..	·9898	1·0113
					0·9902	
do 21..	13083	Native Red Wine..	Lévesque & Pichette.	Ontario Grape Co., St. Catharines.	1·0520	1·0675
					1·0522	
do 21..	13084	Port	M. Kilkerry..	Imported.....	1·0055	
					1·0100	1·0320
do 21..	13085	Sherry	M. Kilkerry.....	do	·9933	1·0145
					0·9922	
do 24..	13086	Sauternes....	P. Daoust.....	O. Lanoire & Lefort, Bordeaux.	·9974	1·0089
					0·9939	
do 24..	13087	Native.....	P. Daoust.....	.....	1·0354	1·0416
					1·0327	
do 24..	13088	Native, Pelee Island Port.	N. Collis & Co	J. S. Hamilton & Co., Brantford.	1·0419	1·0589
					1·0424	
do 24..	13089	Sauternes.....	Murphy Bros.....	Barton & Guestier, Bordeaux.	·9848	1·0108
					0·9906	
do 24..	13090	Sherry.....	Murphy Bros.....	Known as McKenzie's Sherry.	·9945	1·0133
					0·9941	
do 24..	13091	Native.....	N. Morin & Co.....	H. Emery, St. Roch de Richelieu.	1·0281	1·0452
					1·0282	

The first line in the case of each of the foregoing samples shows

Results when given in the second line are by A. McGill,

1893.				<i>Ottawa.</i>			
Nov. 16..	13662	Claret—St. Julien..	Messrs. Bate & Co..	Barton & Guestier, Bordeaux.	0·9965	0·9965	1·0095
do 16..	13663	Sauternes.....	do do ..	Barton & Guestier, Bordeaux.	0·9995	0·9999	1·0139
do 16..	13664	Nierstein	do do ..	Deinhard & Co., Germany.	0·9959	0·9952	1·0092
do 16..	13665	Sparkling Moselle..	do do ..	Deinhard & Co., Germany.	1·0125	1·0130	1·0285

Inland Revenue—Adulteration of Food.

of 124 Samples of Wine—*Continued.*

RESULTS OF ANALYSIS.										Remarks.	Serial No. of Samples in Table II.
Alcohol.			Total solids	Reducing sugars as dextrose.	Polarization.	Acidity.			Ash.		
By wt.	By vol.	P. c. Proof Spirit.				Total as Tartaric Acid.	Fixed as Tartaric Acid.	Volatile as Acetic Acid.			
6·64	8·27	.....	4·84	.....	.....	·258	·176	·0658	·132	Adulterated.	74
6·71	8·36	14·66	3·83	1·711	.....	0·3675	0·2415	0·1008	.....	Fermented in bottle.	
13·23	16·23	.....	2·79	.....	.....	·264	·2028	·063	·152	Adulteration doubtful.	7
13·77	16·98	29·76	2·452	1·808	.....	0·1665	0·0774	0·1188	.....	Alcohol added.	
9·79	12·14	.....	17·58	.....	.....	1·240	·735	·404	·586	Adulterated.	36
9·57	11·87	20·81	16·260	12·930	.....	1·2600	0·6945	0·4524	.....	Foreign sugar used.	
16·00	19·90	.....	7·530	.....	.....	·3116	·197	·091	·150	Adulterated; fortified with highwines.	4
15·33	18·88	33·08	7·692	6·592	.....	0·3600	0·2535	0·0852	.....	Alcohol added.	
14·00	17·26	.....	5·75	.....	.....	·523	·249	·218	·230	Adulteration doubtful.	46
8·43	10·47	18·35	3·165	1·954	.....	0·5025	0·2505	0·2016	.....	
6·90	8·70	.....	1·86	.....	.....	·608	·273	·268	·314	Genuine.	75
6·64	8·27	14·15	1·812	0·292	.....	0·6225	0·300	0·258	.....	
5·94	7·40	.....	9·25	.....	.....	·520	·152	·293	·180	Adulterated.	77
5·69	7·09	12·43	9·892	7·681	.....	0·8625	0·2565	0·4848	.....	
10·53	13·05	.....	15·13	.....	.....	·630	·423	·1668	·120	do	33
9·79	12·13	21·27	14·005	13·465	.....	0·6520	0·4595	0·1548	.....	Sugar used.	
10·73	13·35	.....	2·55	.....	.....	·570	·417	·132	·240	Adulteration doubtful.	31
9·93	12·31	21·57	2·355	0·710	.....	0·6150	0·4530	0·1296	.....	Probably some foreign sugar used.	
14·91	18·36	.....	4·008	.....	.....	·411	·267	·115	·525	Adulteration doubtful.	5
14·18	17·48	30·64	3·772	2·158	.....	0·4050	0·2610	0·1152	.....	Alcohol added.	
11·69	14·46	..	11·81	.....	.....	·882	·682	·162	·282	Adulterated.	27
10·15	12·58	22·06	10·945	8·750	.....	0·8625	0·6420	0·1764	.....	Foreign sugar used.	

the results reported by Dr. J. B. Edwards, Official Analyst, Montreal.

B. A., &c., Assistant to Chief Analyst, Ottawa.

8·035	9·99	17·505	1·96	0·2945	.....	0·672	.....	0·1794	0·3067	Genuine.	65
7·67	9·5	16·71	2·063	0·219	.....	0·5775	0·4125	0·1320	.....	
9·035	11·215	19·655	2·60	1·2185	.....	·723	.....	·1419	·335	do	48
8·36	10·38	18·20	2·87	0·215	.....	·6675	·5235	·1152	.....	
8·43	10·47	18·35	1·835	·084	.....	·757	.....	·099	·2233	do	59
7·87	9·78	17·14	2·035	0·117	.....	·6675	·5745	·0744	.....	
9·50	11·79	20·65	5·615	4·53	.....	·817	.....	·144	·1667	Fair.	14
12·08	14·93	26·17	6·385	not dt	.....	·6900	·6090	·0648	.....	Foreign sugar used or alcohol added.	

TABLE I.—Results of the Examination

Date of Collection.	Number of Sample.	Brand.	NAME AND ADDRESS OF.		Specific Gravity.	
			Vendor.	Manufacturer or Furnisher as given by Vendor.	Of the Wine.	Spent Wine.
			<i>Ottawa—Con.</i>			
Nov. 16..	13666	Liebframulch.....	Messrs. Bate & Co..	Deinhard & Co., Germany.	·997 0·997	..... 1·0110
do 16..	13667	Native Claret.....	do do	Pelee Island Co.....	1·0397 1·0250	..... 1·0435
do 16..	13668	Catawba.....	do do	do do	1·0268 1·0262	..... 1·0448
do 16..	13669	do	D. Walsh	do do	1·0256 1·0101	..... 1·0416
do 16..	13670	Native Claret.....	do	do do	1·0398 1·0282	..... 1·0470
do 16..	13671	Claret—St. Julien..	do	Barton & Guestier..	·9965 ·9969	..... 1·0095
do 16..	13672	Port Wine.....	do .....	.....	1·0116	.....
do 16..	13673	Sherry.....	do .....	.....	·9928 0·9930	..... 1·0168

The first line in the case of each of the foregoing samples shows

Results when given on the second line, are by A. McGill,

			<i>Toronto.</i>			
Nov. 25..	14017	Rhine wine.....	E. A. Wilkinson, 152 King St., E.	Jeiter & Millar, Bingen on Rhine.	0·99218	.....
do 25..	14018	Hungarian.....	E. A. Wilkinson, 152 King St., E.	A. M. Borter, Hungary.	0·99376	.....
do 25..	14019	Rhine wine	E. A. Wilkinson, 152 King St., E.	Jeiter & Millar	0·98844	.....
do 25..	14020		E. A. Wilkinson, 152 King St., E.	Hungarian Govern- ment.	·99411	.....
do 25..	14021	Native Port	E. A. Wilkinson, 152 King St., E.	Niagara Falls Wine Company.	1·0376	.....
do 25..	14022	Native Sherry.....	E. A. Wilkinson, 152 King St., E.	Niagara Falls Wine Company.	1·0224	.....
do 27..	14023	Native	Gianelli & Co. 16 King St., W.	Pelee Island Wine Co	0·9909	.....
do 27..	14024		Gianelli & Co., 16 King St., W.	Kock, Frankfort....	0·99578	.....

Inland Revenue—Adulteration of Food.

of 124 Samples of Wine—*Continued.*

RESULTS OF ANALYSIS.										REMARKS.	Serial No. of Samples in Table II.
Alcohol.			Total solids.	Reducing Sugars as Dextrose.	Polarization.	Acidity.			Ash.		
By wt.	By vol.	P. c. Proof Spirit.				Total as Tartaric Acid.	Fixed as Tartaric Acid.	Volatile as Acetic acid.			
8·675	10·775	18·885	2·35	·218	.....	·765	.....	·093	·2267	Genuine.	52
8·21	10·21	17·89	2·225	0·199	.....	·6605	·5265	·1068	.....	
10·27	12·725	22·30	11·701	1·215	.....	·690	.....	·171	·1333	Sugar added.	13
12·15	15·02	26·33	9·858	9·118	.....	·6900	·5310	·1272	.....	Foreign sugar used or alcohol added.	
12·00	14·84	26·00	9·28	8·64	.....	·705	.....	·081	·130	Sugar added.	19
11·38	14·09	24·69	9·125	9·041	.....	·6450	·4965	·1188	.....	Foreign sugar used.	
12·92	15·96	27·97	9·47	9·35	.....	·532	.....	·081	.....	Sugar added.	12
12·23	15·12	26·49	10·125	11·034	.....	·4875	·3825	·084	.....	Alcohol added.	
10·31	12·77	22·38	11·75	10·94	.....	·690	.....	·186	·1367	Sugar added.	15
12·00	14·84	26·00	10·533	9·139	.....	·6750	·5130	·1296	.....	Alcohol added.	
8·07	10·03	17·58	1·96	0·27	.....	·644	.....	·126	·2833	Genuine.	62
7·63	9·62	16·86	2·025	0·272	.....	·5525	·3975	·1320	.....	
16·12	19·83	34·74	7·28	6·52	.....	·494	.....	·072	·1867	Genuine, but sweet.	
16·35	20·105	35·23	3·17	2·38	.....	·442	.....	·111	·360	Genuine.	2
15·83	19·49	34·13	3·44	2·333	.....	0·3525	0·2370	0·0924	.....	Alcohol added.	

the results reported by Dr. F. X. Valade, Official Analyst, Ottawa.

Esq., B.A., etc., Assistant to Chief Analyst, Ottawa.

11·949	14·75	.....	2·71	.....	.....	0·765	.....	0·022	0·19		
9·26	11·50	.....	2·08	.....	.....	0·690	.....	0·089	0·17		
12·80	15·80	.....	2·076	.....	.....	0·645	.....	0·048	0·188	Alcohol added.	
13·059	16·15	.....	2·654	0·298	0·0°	0·675	.....	0·091	0·209	do	
10·09	12·50	.....	14·34	13·66	27·6	1·005	.....	0·06	0·188	Sugar added.	
11·42	14·15	.....	10·26	9·37	25·08	0·802	.....	0·105	0·146	do	
9·20	11·40	.....	1·468	undet.	undet.	0·712	.....	0·105	0·120		
8·53	10·63	.....	2·30	0·198	0·44	0·637	.....	0·432	0·24		

TABLE I.—Results of the Examination

Date of Collection.	No. of Sample.	Brand.	NAME AND ADDRESS OF		Specific Gravity.	
			Vendor.	Manufacturer or Furnisher as given by Vendor.	Of the Wine.	Spent Wine.
			<i>Toronto—Con.</i>			
Nov. 27..	14025	Sherry	Gianelli & Co., 16 King St., W.	Deinhard & Co.....	·99186	.....
do 27..	14026	Rhine	Gianelli & Co., 16 King St., W.		·99630	.....
do 27..	14027	Native	N. Mara, 79 Yonge St.,	Cooksville Wine Co. Cooksville.	·9932	.....
do 27..	14028	Medoc.....	N. Mara, 79 Yonge St.,	Merman & Co., Bordeaux.	·99646	.....
do 27..	14029		N. Mara, 79 Yonge St.,	Merman & Co., Bordeaux.	·99493	.....
do 27..	14030	St. Julien.....	N. Mara, 79 Yonge St.,	St. Julien, Guithern & Co. Bordeaux.	·9970	.....
do 27..	14031	Sherry (Misa).....	Mitchie & Co., King St.,	Misa & Bo., Spain ..	·99254	.....

The foregoing results are those reported by

			<i>London, Ont.</i>			
Nov. 21..	14005	Port.....	John Garvey.....	Imported.....	1·0133	.....
do 21..	14006	Native	John Garvey.....	Niagara Falls, Wine Bompany.	1·00533	.....
do 21..	14007	Canary Island..	John Garvey.....	From Banary Island.	·9952	.....
do 21..	14008	Port Wine.....	John Garvey.....		1·0145	.....
do 21..	14009	Claret.....	James Wilson.....	Barton & Guestier, Bordeaux.	·99637	.....
do 21..	14010	Native.....	James Wilson. . .	T. D. Greening & Bo., Hamilton.	1·0503	.....
do 21..	14011	Teragonn.....	James Wilson.....		1·0105	.....
do 21..	14012	Sherry	James Wilson.....	T. G. Gordon, Im- ported.	·99463	.....
do 22..	14013	Sherry.....	E. B. Smith.....	Imported from Spain.	·99627	.....
do 22..	14014	Angelica.....	E. B. Smith.....	From Balifornia.....	1·0326	.....
do 22..	14015	Native.....	E. B. Smith.....	Pelee Island.....	1·0155	.....
do 22..	14016	St. Julien.....	E. B. Smith....	Barton & Guestier, Bordeaux.	·99693	.....

The foregoing results reported are by F. T.

Inland Revenue—Adulteration of Food.

of 124 Samples of Wine—*Continued.*

RESULTS OF ANALYSIS.										Remarks.
Alcohol.			Total solids.	Reducing Sugars as Dextrose.	Polarization.	Acidity.			Ash.	
By wt.	By vol.	P. c. Proof Spirit				Total as Tartaric Acid.	Fixed as Tartaric Acid.	Volatile as acetic acid.		
9·596	11·90	.....	1·844	0·125	0·22	0·585	.....	0·117	0·232	
7·496	9·30	.....	2·34	0·108	0·22	0·840	.....	0·057	0·224	
11·680	14·45	.....	7·625	5·042	12·6	0·862	.....	0·192	0·159	Contains about 5% foreign sugar.
7·495	9·30	.....	2·182	0·158	0·6	0·847	.....	0·254	0·245	
7·983	9·90	.....	1·97	0·12	0·24	0·70	.....	0·10	0·18	
7·491	9·30	.....	3·664	0·178	0·48	0·798	.....	0·124	0·464	
15·512	19·10	.....	3·619	3·12	2·2	0·510	.....	0·062	0·462	Contains about 3 % sugar and added alcohol.

Dr. W. H. Ellis, Official Analyst, Toronto.

16·75	21·40	.....	9·24	7·18	.....	·421	·310	·089	·178	Fortified and has had saccharine matter added.
9·77	12·96	.....	16·30	11·9	.....	·810	·676	·107	·190	Sweetened.
14·16	17·76	.....	3·54	1·00	.....	·718	·484	·187	·500	Fortified.
16·25	20·76	.....	9·16	6·57	.....	·507	·403	·083	·217	Fortified and contains added saccharine matter.
7·92	9·93	.....	2·05	Trace.	.....	·604	·463	·113	·301	Pure.
11·27	14·90	.....	15·91	11·9	.....	·824	·681	·115	·143	Sweetened.
12·92	16·44	.....	6·91	4·95	.....	·558	·365	·155	·238	Has added saccharine matter and probably alcohol.
13·91	17·44	.....	3·23	1·92	.....	·378	·260	·095	·362	Fortified.
13·89	17·44	.....	3·56	1·87	.....	·466	·363	·083	·432	do
13·97	18·19	.....	12·49	10·8	.....	·316	·238	·062	·155	Fortified and contains added saccharine matter.
12·10	15·48	.....	7·95	5·71	.....	·704	·469	·188	·118	do do
7·53	9·46	.....	1·93	None.	.....	·680	·420	·207	·341	Pure.

Harrison, Esquire, Official Analyst, London, Ont.

TABLE I.—Results of the Examination

Date of Collection.	No. of Sample.	Brand.	NAME AND ADDRESS OF		Specific Gravity.	
			Vendor.	Manufacturer or Furnisher as given by Vendor.	Of the Wine.	Spent Wine.
1893.			<i>Winnipeg.</i>			
Nov. 24..	12366	Rhine Wine, Nierstein.	Richard & Co.....	Deinhard & Co., Germany.	0.9954 0.9959	..... 1.0089
do 24..	12367	Claret.....	Richard & Co.....	Johnston & Sons, Bordeaux.	0.9968	.....
do 24..	12368	Native Red Wine...	Richard & Co.....	T. G. Bright, Niagara Falls.	1.0515 1.0509	..... 1.0675
do 24..	12369	Native White Wine.	Velie, Carey & Co...	T. G. Bright, Niagara Falls.	1.0362 1.0363	..... 1.0514
do 24..	12470	Sauternes.....	Velie, Carey & Co...	Barton & Guestier...	1.0053	.....
do 24..	12371	Claret.....	Velie, Carey & Co...	Johnston & Sons, Bordeaux.	0.9956	.....
do 24..	12372	Claret (Panillac)...	Hudson's Bay Co...	Barton & Guestier...	0.9961 0.9969	..... 1.0088
do 24..	12373	Claret.....	Hudson's Bay Co...	Bottled by Hudson's Bay Co., Winnipeg	0.9958	.....
do 24..	12374	Sauternes.....	Hudson's Bay Co...	Johnston & Sons, Bordeaux.	0.9964	.....
do 24..	12375	Sauternes.....	G. F. & G., Galt....	P. A. Labrunie et Fils, Bordeaux.	0.9981	.....
do 24..	12376	Native Red Wine..	G. F. & G., Galt....	T. G. Bright, Niagara Falls.	1.0487 1.0491	..... 1.0644
do 24..	12377	Rhine (Chablis)....	A. Colquhoun.....	C. Many & Co.....	0.9933 0.9942	..... 1.0079

The first line in the case of each of the foregoing samples shows the Results, when given in the second line, by A. McGill,

Inland Revenue—Adulteration of Food.

of 124 Samples of Wine—*Continued.*

RESULTS OF ANALYSIS.										Remarks.	Serial No. of Samples in Table II.
Alcohol.			Total solids.	Reducing Sugars as Dextrose.	Polarization.	Acidity.			Ash.		
By wt.	By vol.	Proof Spirit				Total as Tartaric Acid.	Fixed as Tartaric Acid.	Volatile as Acetic Acid.			
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
7·10	.....	.....	1·74	.....	.....	.....	0·476	0·066	0·217	Genuine.	56
8·00	9·95	17·43	1·790	0·171	.....	0·6075	0·4680	0·1116	.....	
8·14	.....	.....	1·96	.....	.....	.....	0·427	0·106	0·243	do	
9·80	.....	.....	14·85	.....	5·82	.....	0·561	0·119	0·174	do	26
10·31	12·77	22·38	14·915	14·486	.....	0·7725	0·5640	0·1668	.....	Foreign sugar used.	
8·37	.....	.....	11·29	.....	4·72	.....	0·456	0·069	0·130	Genuine.	34
9·79	12·13	21·27	11·710	10·986	.....	0·6225	0·4995	0·0984	.....	Foreign sugar used.	
7·81	.....	.....	3·64	.....	0·46	.....	0·449	0·150	0·234	Genuine.	
8·58	.....	.....	2·00	.....	.....	.....	0·477	0·090	0·256	do	
7·89	.....	.....	1·88	.....	.....	.....	0·422	0·085	0·249	do	73
7·13	8·88	15·56	1·875	0·243	.....	0·5700	0·4350	0·1080	.....	
8·64	.....	.....	2·12	.....	.....	.....	0·409	0·120	0·278	do	
9·11	.....	.....	2·10	.....	0·06	.....	0·435	0·124	0·251	do	
10·23	.....	.....	2·83	.....	0·23	.....	0·394	0·183	0·260	do	
9·93	.....	.....	14·03	.....	6·46	.....	0·553	0·095	0·158	do	29
9·93	12·31	21·57	14·475	13·028	.....	0·7650	0·6030	0·1296	.....	Foreign sugar used.	
8·86	.....	.....	1·64	.....	.....	.....	0·439	0·096	0·185	Genuine.	54
8·07	10·03	17·58	1·488	0·097	.....	0·6075	0·4485	0·1272	.....	

results reported by Professor E. B. Kenrick, Official Analyst, Winnipeg.

Esquire, B. A., &c., Assistant to Chief Analyst, Ottawa.

TABLE I.—Results of the Examination

Number of Sample.	Brand.	Name and Address of Furnisher.	RESULTS OF				
			Specific Gravity.		Alcohol.		
			Of the Wine.	Spent Wine.	By wt.	By vol.	Proof Spirit.
W 1..	Sacramental Wine..	E. Girardot & Co., Essex, Ont.	0·9967	1·0133	p. c. 10·15	p. c. 12·58	p. c. 22·06
W 2..	do	A. C. Tournier do ..	0·9932	1·0073	9·07	11·26	19·73
W 3..	do	E. Girardot & Co. do ..	0·9956	1·0084	8·00	9·95	17·43
W 4..	do	A. C. Tournier do ..	0·9972	1·0105	8·36	10·38	18·20
W 5..	Sweet Sauterne.....	E. Girardot & Co. do ..	1·0093	1·0241	9·21	11·44	20·04
W 6..	do	A. C. Tournier do ..	1·0252	1·0376	7·27	9·04	15·85
W 7..	Sauterne Catawba...	E. Girardot & Co. do ..	0·9902	1·0074	10·85	13·43	23·54
W 8..	do	do do ..	0·9902	1·0070	10·85	13·43	23·54
W 9..	do	do do ..	1·0000	1·0156	9·79	12·13	21·27
W 10..	Sauterne	do do ..	0·9953	1·0082	9·29	11·52	20·19
W 11..	Bordeaux	A. C. Tournier do ..	0·9959	1·0093	8·50	10·56	18·50
	Claret.....	Bate & Co., Ottawa... ..	0·9968	1·0097	7·87	9·78	17·14
	Port (Commendador)	do do	1·0117	1·0356	16·31	20·06	35·14
W 12..	Niagara	Niagara Falls Wine Co.....	0·9979	.....	7·60	9·45	.....
			.....	1·0101	.....	.....	16·57

Inland Revenue—Adulteration of Food.

of 124 Samples of Wine—*Continued.*

ANALYSIS.							REMARKS.	Serial No. of Samples in Table II.
Total solids.	Reducing Sugars as Dextrose.	Polarization.	Acidity.			Ash.		
			Total as Tartaric Acid.	Fixed as Tartaric Acid.	Volatile as Acetic Acid.			
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
2·775	1·415	.....	0·7050	0·4740	0·1850	.....	Foreign sugar used.	28
1·835	0·248	.....	0·7500	0·4920	0·2220	.....		42
1·902	0·622	.....	0·6070	0·4410	0·1810	.....	Some foreign sugar probably used.	55
2·120	0·992	.....	0·6450	0·4450	0·1600	.....	Foreign sugar used.	47
5·208	3·928	.....	0·7280	0·4150	0·2500	.....	Foreign sugar used.	41
8·098	7·477	.....	0·7650	0·4080	0·2860	.....	do do	72
1·510	0·248	.....	0·6600	0·4770	0·1460	.....	do do	21
1·600	0·238	.....	0·6600	0·5010	0·1270	.....	do do	22
3·328	2·100	.....	0·7420	0·5020	0·1920	.....	do do	35
1·980	0·244	.....	0·8550	0·7530	0·0820	.....		39
2·062	0·272	.....	0·7120	6·5830	0·1030	.....		45
2·110	0·228	.....	0·6525	0·3825	0·2160	.....		58
7·890	6·825	.....	0·4275	0·3285	0·7920	.....	Alcohol added.	1
2·065	.....	.....	0·8400	.....	0·1416	.....	
.....	0·933	.....	.....	0·4530	.....	.....	Alcohol probably added.	67

In this Table (I) the name and source of the samples appear, and, in the majority of cases, opposite each of these will be found two separate lines of results, the upper one showing the analysis, and the lower one the figures obtained in this laboratory. Out of the 110 samples 63 duplicate bottles of the same sorts were examined by Mr. A. McGill, B.A., &c., First Assistant Analyst; 14 additional samples from other sources were also analysed by him, the results of which are given at the end of the statement. On the same lines which give the analytical results by the district analysts will also be found their observations on the various samples. Where a second line of figures stands opposite any sample showing Mr. McGill's results, it has in some cases been possible to state whether the wine has been fortified or has had sugar used in its manufacture. The opinions thus given are based upon considerations which may here be explained.

Wines containing a higher percentage of alcohol than that corresponding to 26 p. c. of proof spirits are regarded as having been fortified because experience has shown that it is impossible to produce, even from the richest must, wine containing any larger quantity. The above amount happens to be the limit above which wines imported into Canada have to pay extra duty, but it is also one which is well founded scientifically. It corresponds to 12 p.c. by weight and 14·84 p.c. by volume of alcohol. According to Von Babo, wines from musts naturally rich in sugar, and in the fermentation of which the spirit produced has an antiseptic effect, and prevents the complete transformation of the sugar (so-called "Ausbruchweine") never contain more than 14 or 15 per cent by volume of alcohol. On the other hand Thudichum says that "he had made many experiments on must from Spanish grapes, with a view of ascertaining the maximum of alcohol obtainable by fermentation. * * * In no case out of more than thirty was a wine obtained which contained more than 22 per cent of proof spirit."* This is equal to 10·15 p.c. by weight and 12·58 p.c. by volume of alcohol. It is thus evident that the limit of 14·84 p.c. by volume of alcohol is placed quite high enough, especially when it is considered that this corresponds theoretically to 23·48 of grape sugar in the original must, a quantity much higher than the average. According to recent analyses of grape juice these vary in sugar contents from 12·8 to 26·8 p.c., and even in the case of Portuguese and Italian grapes there is no analysis recorded which shows more than 23·6 p.c.

In judging as to whether sugar has been added in the manufacture it becomes necessary to take into consideration some particulars concerning the production of wine as well as the average composition of grape juice. According to the prevailing theory regarding fermentation 51·11 parts by weight of anhydrous alcohol should be obtained from 100 of grape sugar. But in practice, according to Pasteur there is a loss of 4 or 5 p. c. of sugar which is converted into other products than alcohol and chiefly glycerine. This is confirmed in a recent paper on musts and wines of the Prussian wine-growing districts by Dr. P. Kulisch. He gives, among other valuable data, the sugar contents of the different musts and the sugar and alcohol percentages of the different wines produced in the various vineyards during the year 1892, which on the whole was considered a good year for grape growing. The averages for the different districts were also calculated and are as follows :—

	Sugar in the musts grammes used, in 100 cc.	In the resulting wines, by weight grammes in 100 cc.	
		Sugar.	Alcohol.
Main and Rheingau, including the Kinzig Valley..	18·96	0·17	8·60
Nahe and Glau Valley.....	16·82	0·14	8·28
Rhine Valley below the Rheingau.....	17·42	0·09	8·36
Moselle district.....	16·96	0·13	7·71
Total averages.....	17·54	0·13	8·24

From these figures it appears that only 47·33 per cent of alcohol was obtained in these wines from the grape sugar of the musts used, after making allowance for the small quantity of sugar which remained unfermented. If, however, in order to be safe—

*Proceedings of the Royal Colonial Institute, Vol. VII., p. 317.

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we assume that 50 p. c. can be obtained, and that grape musts do not average more than 20 p. c. sugar, we have a secure basis for judgment as to whether any of the wines mentioned in the accompanying table have had sugar added in their manufacture. It will be evident that 20 p. c. sugar in the must is a sufficiently high estimate, when the following averages given by König as regards the grape juice of various countries are taken into consideration:—

	p. c. Sugar.
In Rhineland Musts.....	19.71
“ Alsatian “	18.82
“ Austrian “	17.31
“ Tyrolean “	21.30
“ Italian “	17.85
Total average	
	19.00

If therefore on doubling the weight of the alcohol contained in the sample, and adding its sugar, the total exceeds 20 per cent, there is very good ground for considering that foreign sugar has been added in producing it. It is upon this basis that the words in the remark column “foreign sugar used” have been applied. Of course in such cases the possibility that alcohol has been added as well is not excluded.

It will be observed from Table II. that, not only has the amount of Total Solids (which is equivalent to “Extract” or “dry substance”) been determined in the analyses made by Mr. McGill, but also the specific gravity of the spent or dealcoholized wine. This figure renders possible an indirect determination of the total solids by applying the tables which have been used for this purpose, a method preferred by some authorities especially for sweet wines. Such tables are those constructed by Balling, Schultze, Elion and Hager, of which the first and last named are preferred in the present case. Balling’s table has been very frequently used in obtaining the solid of grape must from their specific gravities; the Schultze-Ostermann and Elion tables are based upon experiments with beer worts, but Hager’s table is intended for wine only. It is interesting to compare the estimations by means of Balling’s and Hager’s tables with the direct determination in crysotile fibre as carried out by Mr. McGill. He used 20 c.c. of the wine and dried for forty hours at a temperature varying from 95° to 100° C. This comparison is made in Table II., which is given at the end of this report and regarding which the following remarks are necessary:—

In this Table (II.) the figures contained in columns 1, 2, 3, 6 and 7 are taken from Table I. Column 4 shows the amount of total solids, or extract contained in each sample according to Balling’s table. Column 4 shows the same according to Hager. (Hager’s Untersuchungeon II., p. 373.) It will be observed that, in the great majority of cases, the figures from Hager agree very closely with the experimental results in column 6. In column 7 the quantity of reducing sugar contained in each of the samples is introduced. By deducting this from the extract in column 6, the figures in column 8 are obtained which show the quantity of solids other than sugar contained in 100 c.c. of each sample. This column would seem to be of some importance because the solids in question would necessarily be subjected to a reduction in quantity in cases where water, sugar or alcohol had been added in the manufacture of the wine. On referring to König’s collection of analyses of genuine French and Rhenish red and white wines it will seldom be found that the quantity of such non-saccharine solids falls below 2 per cent. Even in the imported dry white wines and clarets mentioned in the table this percentage is seldom less than 1.75. Where it only amounts to 1.5 there is therefore good reason to suspect artificial additions especially if other results are confirmatory. Such other results have been already indicated in connection with Table I., and they are expressed in columns 8 and 9 of Table II. The former shows the percentage of sugar which has been used in producing the wine, the figures having been obtained by the use of the formula mentioned above (p. c. alcohol by weight $\times 2 +$ p. c. sugar). For the reasons already stated when this exceeds 20 p.c. the genuineness of the wine is called in question. Column 9 shows the ratio between the non-saccharine solids and the total sugar of Column 8. From the analyses of pure wines recorded by König

and Kulisch it is judged that this ratio seldom exceeds 10 of sugar to 1 of non-saccharine solids.

The names and particulars of the samples in Table II. are given in the order of their alcoholic strength, the strongest being placed at the head of the list. These are mostly imported sherry and port, containing from 16 to 12 p.c. by weight of alcohol (=19.68 to 14.84 p.c. alcohol by volume or 34.5 to 26.0 p.c. proof spirit). Next in strength come the native wines which, with few exceptions, range from 12 to 8 p.c. alcohol by weight (=14.84 to 9.95 p.c. alcohol by volume or 26.00 to 17.43 p.c. of proof spirit). Many of them appear to contain an unnecessarily large quantity of sugar, some of them as high as 14 per cent while none of the imported wines show over 8 p.c. The imported sauternes and clarets are as a rule weaker than the native wines, and vary from 10 to 7 p.c. alcohol by weight (equal to 12.40 to 8.72 p.c. alcohol by volume or 21.73 to 15.27 p.c. proof spirit), but then they are freer from artificial additions. There are, however, one or two of the native clarets which approach closely in composition to some samples of the imported article.

I beg respectfully to recommend the publication of this report ; and

I have the honour to be, sir,

Your obedient servant,

THOMAS MACFARLANE,

Chief Analyst.

OTTAWA, 23rd June, 1894.

TABLE II.

ADDITIONAL RESULTS

CALCULATED FROM THE

ANALYSES OF 77 SAMPLES OF WINES

TABLE II.—Additional results calculated

Number of Sample.	Description.	Manufacturer, Bottler or Vendor.	Serial No.	Sp. Gr.	Grammes	Sp. Gr.
				at 15° C.	Alcohol in 100 cc.	of Spent Wine.
				1	2	3
B-1	Commendador Port.	Bate & Co., Ottawa	1	1 0117	16 31	1 0356
13673	Sherry	D. Walsh, Ottawa	2	0 9930	15 83	1 0168
13111	Madeira	Lacaux et Frères, Li-moges.	3	1 0035	15 42	1 0268
13084	Port	M. Kilkerry, Montreal..	4	1 0100	15 33	1 0320
13090	Sherry	Murphy Bros., Montreal.	5	0 9941	14 18	1 0133
13080	Sherry	F. Giroux, Montreal	6	0 9956	13 85	1 0169
13082	Sherry	Lévesque et Pichette, Montreal.	7	0 9902	13 77	0 0113
12786	Palesheny, imported	J. Tobin & Co., Halifax.	8	0 9964	13 23	1 0167
13079	Port	F. Giroux, Montreal	9	1 0131	12 77	1 0323
13107	Native wine	Ontario Grape Co.	10	1 0033	12 54	1 0180
12787	Port, imported	J. Tobin & Co., Halifax.	11	1 0202	12 31	1 0390
13669	Catawba, native white	Pelee Island	12	1 0101	12 23	1 0416
13667	Claret, native	Pelee Island	13	1 0250	12 15	1 0435
13665	Sparkling Moselle	Deinhardt	14	1 0130	12 08	1 0285
13670	Claret, native	Pelee Island	15	1 0282	12 00	1 0470
6444	Catawba, native white	Niagara Falls Co.	16	1 0306	11 77	1 0466
13103	Native	Fournier	17	1 0384	11 69	1 0573
12785	Grape Port	Ontario Grape Co.	18	1 0363	11 46	1 0542
13668	Catawba, native white	Pelee Island	19	1 0262	11 38	1 0448
6446	Dark red native wine	Ontario Wine Co.	20	1 0441	11 00	1 0596
W-7	Sauterne Catawba	Girardot, Sandwich	21	0 9902	10 85	1 0074
W-8	Sauterne Catawba	Girardot, Sandwich	22	0 9902	10 85	1 0070
6445	Native red wine	Niagara Falls Co.	23	1 0197	10 69	1 0380
6447	Champagne	Mumm	24	1 0048	10 62	1 0209
6442	St. Augustine, native	Niagara Falls Co.	25	1 0299	10 38	1 0457
12368	Native red wine	Niagara Falls Co.	26	1 0509	10 31	1 0675
13091	Native	H. Emery, St. Roch.	27	1 0282	10 15	1 0452
W-1	Sacramental wine	Girardot, Sandwich	28	0 9967	10 15	1 0133
12376	Native red wine	Niagara Falls Co.	29	1 0491	9 93	1 0644
6443	Sweet catawba	Pelee Island Wine Co.	30	1 0339	9 93	1 0472
13089	Sauterne, dry white	Barlow et Guestier	31	0 9906	9 93	1 0108
6437	Champagne	Mumm	32	1 0129	9 86	1 0288
13088	Port, Pelee Islands	J. S. Harrington & Co., Brantford.	33	1 0424	9 79	1 0589
12369	Native, light coloured	Niagara Falls Co.	34	1 0363	9 79	1 0514
W-9	Sauterne Catawba	Girardot	35	1 0000	9 79	1 0156
13083	Red wine, native	Ontario Grape Co.	36	1 0522	9 57	1 0675
13109	Haut Sauterne, d. w.	Lannière, Bordeaux	37	1 0085	9 57	1 0249
13075	Medoc, claret	Lanoire	38	0 9938	9 50	1 0090
W-11	Claret, native	Girardot, Sandwich	39	9 9953	9 29	1 0082
12799	Steinwein, dry white	Krote, Coblenz	40	0 9927	9 21	1 0083
W-5	Sweet Sauterne	Girardot	41	1 0093	9 21	1 0241
W-3	Sacramental wine	Tournier	42	0 9932	9 07	1 0073
6436	Sauterne, dry white	Calvet	43	0 9997	8 79	1 0137
13078	Medoc, claret	Rodrique, Montreal	44	0 9955	8 64	1 0131
W-2	Bordeaux	Imported, Tournier	45	0 9959	8 50	1 0093
13085	Sherry	M. Kilkeny, Montreal	46	0 9922	8 43	1 0145
W-4	Sacramental wine	Tournier	47	0 9972	8 36	1 0105
13663	Sauterne, dry white	Barton & Guestier	48	0 9999	8 36	1 0139
6441	Claret	DeLasa, private cellar	49	0 9959	8 36	1 0092
13106	Sauterne, dry white	Vigneau, Bordeaux	50	0 9991	8 29	1 0127
13101	St. Estephe, claret	Beaudry, Quebec	51	0 9967	8 21	1 0105
13666	Liebfraumilch, 1876, dry white	Deinhardt	52	0 0970	8 21	1 0110
6640	Sauterne, dry white	Hanappier, Bordeaux	53	1 0012	8 21	1 0133

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from the Analyses of 77 samples of Wine.

TOTAL SOLIDS ACCORDING TO		GRAMMES.		Differ-ences.	Reducing and Alcohol Sugar in 100 cc. original must.	Ratio of Non-sugar solids to Sugar in the original must as 1 to figure given.	Remarks.	Serial No.
Balling.	Hager.	Solids in 100 cc. by crysotile method.	Reducing Sugar in 100 cc. as Dextrose.						Non-sugar Solids.
4	5	6	7	8	9	10		
8 828	7 77	7 890	6 825	1 065	39 445	37 04	Alcohol added.	1
4 200	3 66	3 440	2 333	1 107	33 993	30 71	do	2
6 681	5 85	5 938	4 336	1 602	35 176	21 95	do	3
7 950	6 97	7 692	6 592	1 100	37 252	33 87	do	4
3 325	2 92	3 772	2 158	1 614	30 518	18 91	do	5
4 225	3 68	3 570	1 118	2 452	28 818	11 75	do	6
2 825	2 48	2 452	1 808	0 644	29 348	45 57	do	7
4 175	3 64	3 235	2 051	1 184	28 511	24 08	do	8
8 024	7 04	7 980	7 117	0 863	32 657	37 82	do	9
4 500	3 96	5 358	3 403	1 955	28 483	14 56	do and foreign sugar used	10
9 657	8 50	8 900	7 855	1 045	32 475	31 08	do	11
10 285	9 02	10 125	11 034	?	35 494	?	do	12
10 738	9 46	9 858	9 118	0 740	33 418	45 16	do and foreign sugar used	13
7 097	6 23	6 385	undet.	—	—	—	do	14
11 571	10 18	10 533	9 139	1 394	33 139	23 77	do	15
11 476	10 10	11 190	9 965	1 225	33 505	27 35	Foreign sugar used.	16
14 023	12 36	12 257	13 230	1 027	34 610	33 70	do	17
13 285	11 70	11 995	9 501	2 494	32 421	13 00	do	18
11 047	9 73	9 125	9 041	0 084	22 760	378 57	do	19
14 571	12 85	14 590	12 833	1 767	34 883	19 74	do	20
1 854	1 63	1 510	0 248	1 262	21 938	17 39	do	21
1 750	1 54	1 600	0 238	1 362	21 938	16 10	do	22
9 413	8 29	8 570	7 000	1 570	28 380	18 07	do	23
5 225	4 58	4 620	undet.	—	—	—	do	24
11 261	9 92	10 160	10 610	0 450	30 920	68 71	Foreign sugar used.	25
16 418	14 50	14 915	14 486	0 429	35 106	81 83	do	26
11 142	9 81	10 945	8 750	2 195	29 050	13 23	do	27
3 325	2 92	2 775	1 415	1 360	21 715	15 97	do	28
15 697	13 86	14 475	13 028	1 447	32 888	22 73	do	29
11 619	10 22	11 330	10 840	0 490	30 700	62 65	do	30
2 700	2 37	2 355	0 710	1 645	20 670	12 56	Some foreign sugar probably used.	31
7 170	6 29	6 410	undet.	.....	.....	.....	.....	32
14 404	12 71	14 005	13 465	0 540	33 045	61 20	Foreign sugar used.	33
12 619	11 12	11 710	10 986	0 724	30 666	42 34	do	34
3 900	3 42	3 328	2 100	1 228	21 680	17 65	do	35
16 418	14 50	16 260	12 930	3 330	32 070	9 63	do	36
6 219	5 45	5 588	4 531	1 057	23 671	22 39	do	37
2 250	1 98	2 050	0 293	1 757	19 293	10 98	do	38
2 050	1 81	1 980	0 244	1 736	18 824	10 84	do	39
2 075	1 83	1 620	0 146	1 474	18 566	12 59	do	40
6 024	5 29	5 208	3 928	1 280	22 348	17 46	Foreign sugar used.	41
1 825	1 61	1 835	0 248	1 587	18 388	11 59	do	42
3 425	3 00	2 940	undet.	.....	.....	.....	.....	43
3 275	2 87	2 070	0 160	1 910	17 440	9 13	.....	44
2 325	2 04	2 062	0 272	1 790	17 272	9 64	.....	45
3 625	3 18	3 165	1 954	1 211	18 814	15 53	Some foreign sugar probably used.	46
2 625	2 31	2 120	0 992	1 128	17 812	15 79	do	47
3 475	3 04	2 870	0 215	2 655	16 935	6 38	do	48
2 300	2 02	1 950	0 165	1 785	16 885	9 45	do	49
3 175	2 79	2 355	0 447	1 908	17 027	8 92	do	50
2 625	2 31	2 265	0 282	1 983	16 702	8 42	do	51
2 750	2 42	2 225	0 199	2 026	16 619	8 20	do	52
3 325	2 92	2 930	undet.	.....	.....	.....	.....	53

Table II—

Number of Sample.	Description.	Manufacturer, Bottler, or Vendor.	Serial No.	Sp. Gr.	Grammes	Sp. Gr.
				at 15° c.	Alcohol in 100 cc.	of Spent Wine.
				1	2	3
12377	Chablis, dry white	A. Colquhoun, Winnipeg	54	0·9942	8·07	1·0079
W-3	Sacramental wine	Girardot, Sandwich	55	0·9956	8·00	1·0084
12366	Nierstein, dry white	Deinhard & Co.	56	0·9959	8·00	1·0089
13076	St. Julien, claret	Brisson, Bordeaux	57	0·9953	7·93	1·0089
B-2	Common claret	Bate & Co., Ottawa	58	0·9968	7·87	1·0097
13694	Nierstein, dry white	Deinhard & Co.	59	0·9952	7·87	1·0092
12790	Haut Sauterne	Clarke, Bordeaux	60	0·9907	7·80	1·0091
13108	St. Estephe, claret	J. McCone, Quebec	61	0·9945	7·73	1·0106
18671	St. Julien, claret	Barton & Guestier	62	0·9969	7·73	1·0095
13077	St. Estephe, claret	Courtillon, Bordeaux	63	0·9952	7·73	1·0081
6438	Nierstein, dry white	F. Furlong, St. John, NB	64	0·9966	7·67	1·0091
13662	St. Julien, claret	Barton et Guestier	65	0·9965	7·67	1·0095
13104	Sauterne, dry white	Bergeron, Quebec	66	1·003	7·67	1·0222
W-13	Niagara, dry white	Niagara Falls Wine Co.	67	0·9979	7·60	1·0101
6439	Margaux, claret	Johnston, Bordeaux	68	0·9932	7·53	1·0096
13112	Madoc (vieux) claret	Roumillac, Quebec	69	0·9971	7·53	1·0101
13110	Graves, dry white	Johnston, Bordeaux	70	0·9977	7·47	1·0097
13102	St. Julien, claret	Johnston, Bordeaux	71	0·9971	7·33	1·0097
W-6	Sweet Sauterne	Tournier	72	1·0252	7·27	1·0376
12372	Panillac, claret	Hudson Bay Co., Winnipeg	73	0·9969	7·13	1·0088
13081	Port	Gautier, Montreal	74	1·0061	6·71	1·0149
13086	Sauterne	Lanoire, Bordeaux	75	0·9939	6·64	1·0089
13105	St. Julien, claret	Paré, Quebec	76	0·9971	6·36	1·0077
13087	Native	Daoust, Montreal	77	1·0327	5·69	1·0416

Inland Revenue—Adulteration of Food.

Continued.

TOTAL SOLIDS ACCORDING TO		GRAMMES.		Differ-ences.	Alcohol	Ratio of Non-sugar solids to Sugar in the original must as 1 to figure given.	Remarks.	Serial No.
Balling.	Hager.	Solids in 100 cc. by crysotile method.	Reducing Sugar in 100 cc. as Dextrose.						Non-sugar Solids.	Reducing and Sugar in 100 cc. original must.
4	5	6	7	8	9	10		
1·975	1·75	1·488	0·097	1·391	16·237	11·67	Alcohol probably added. Some foreign sugar probably used.	54
2·100	1·85	1·902	0·622	1·280	16·622	13·00		55
2·225	1·96	1·790	0·117	1·673	16·117	9·63		56
2·225	1·96	1·850	0·194	1·756	16·054	9·13		57
2·425	2·14	2·110	0·228	1·881	15·969	8·48		58
2·300	2·02	2·035	0·117	1·918	15·857	8·27		59
2·275	2·00	2·120	0·277	1·843	15·877	8·61		60
2·650	2·33	2·105	0·233	1·872	15·693	8·33		61
2·375	2·09	2·025	0·272	1·753	15·732	8·97		62
2·205	1·79	1·670	0·181	1·489	15·641	10·50		63
2·275	2·00	1·990	0·107	1·883	15·447	8·20		64
2·375	2·09	2·063	0·219	1·841	15·559	8·43		65
3·050	2·68	3·250	0·865	2·385	16·205	6·80		66
2·525	2·23	2·065	0·933	1·132	16·133	14·25	Alcohol probably added.	67
2·400	2·11	2·040	undet.	—	—	—		68
2·525	2·23	2·110	0·190	1·920	15·255	7·94		69
2·425	2·14	2·025	0·374	1·651	15·314	9·28		70
2·425	2·14	2·232	0·165	1·077	14·825	7·17		71
9·316	8·21	8·098	7·477	0·621	22·017	35·45	Foreign sugar used.	72
2·200	1·94	1·875	0·243	1·632	14·503	8·88		73
3·725	3·27	3·830	1·711	2·119	15·131	7·14	Fermented in bottle.	74
2·225	1·96	1·812	0·292	1·520	13·572	8·93		75
1·925	1·70	1·550	0·355	1·195	13·075	10·95		76
10·285	9·02	9·892	7·681	2·191	19·061	8·69		77

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APPENDIX O.

BULLETIN No. 39.—FERTILIZERS AS SOLD—1894.

E. MIALL, Esq.,
Commissioner of Inland Revenue.

SIR,—On the 5th of March last I submitted a report to you regarding the agricultural fertilizers, for 1894, of which samples had been sent in to the Department previous to the 31st January. Since then, in accordance with your instructions, 83 samples of fertilizers offered for sale have been collected from vendors having them on hand in various parts of the Dominion. These were submitted to the official analysts for examination, and their results are given in the tabulated statement appended to this report.

In this statement, opposite the description of each fertilizer, will be found, in three separate lines (1) the manufacturers' guaranteed contents; (2) the percentages of fertilizing ingredients contained in the sample collected, and (3) the same percentages as contained in the standard sample submitted to the Department by the manufacturer or vendor. In cases where no such sample has been submitted, the first and third lines will be found blank. I regret to state that this is the case in 29 out of the 83 samples collected, and I beg to call your attention to this increasing unauthorized sale of unregistered fertilizers which is now taking place within the Dominion,

I have the honour to be, sir,
Your obedient servant,

THOMAS MACFARLANE,
Chief Analyst.

2nd August, 1894.

RESULTS of the Examination

Date of Collection.	No. of Sample.	NAME AND ADDRESS OF		Name or Brand of Fertilizer.	Nitrogen.		
		Vendor.	Manufacturer or Furnisher as given by Vendor.		Total, including that of Nitric Acid or Ammonia, if present.	Total calculated as Ammonia.	
							p. c.
1894.		<i>Dartmouth, N.S.</i>					
May 12	14224	R. Settle	Jack & Bell, Halifax	Potato Phosphate— Guaranteed..... Found..... Standard.....	..... ..... 2·89	3·71to4·24 3·60 3·52	
" 12	14225	R. Settle	do	Ceres Superphosphate— Guaranteed..... Found..... Standard.....	..... ..... 2·36	2·01to2·68 2·52 2·87	
" 12	14226	E. M. Walker	Pacific Guano Co., Boston.	Pacific Guano— Guaranteed..... Found..... Standard.....	..... ..... 3·95	2·75to3·50 4·25 4·79	
" 14	14227	T. Gentles & Sons	Pidgeon Fertilizer Co., Windsor, N.S.	Eureka Phosphate— Guaranteed..... Found..... Standard.....	..... ..... 2·56	3 to 4 3·32 3·11	
" 14	14228	Saunders, Halifax	Carter, London, Eng.	Carter's Fertilizer— Guaranteed..... Found..... Standard.....	..... ..... .....	..... 2·93	
		<i>Yarmouth, N.S.</i>					
" 16	14229	Farmers' and Citizens' Co-operative Co.	Bowker Fertilizer Co., New York and Boston.	Bowker's Bone Meal— Guaranteed..... Found..... Standard.....	..... ..... .....	..... 4·37	
" 16	14230	Farmers' and Citizens' Co-operative Co.	Provincial Chemical Fertilizer Co., St. John, N.B.	Potato Phosphate— Guaranteed..... Found..... Standard.....	..... ..... .....	..... 3·75	
" 16	14231	Farmers' and Citizens' Co-operative Co.	do	Imperial Superphosphate— Guaranteed..... Found..... Standard.....	..... ..... .....	..... 3·22	
" 32	14232	E. Allan	Jack & Bell, Halifax	Apple Tree Phosphate— Guaranteed..... Found..... Standard.....	..... ..... 2·92	3·25to4·03 3·81 3·54	
" 16	14233	Farmers' and Citizens' Co-operative Co.	W. P. Churchill, Yarmouth.	Ground Bone— Guaranteed..... Found..... Standard.....	..... ..... 3·80	..... 5·20 4·62	
" 16	14234	Farmers' and Citizens' Co-operative Co.	Provincial Chemical Fertilizer Co.	Bone Meal— Guaranteed..... Found..... Standard.....	..... ..... .....	..... 4·83	
		<i>Digby, N.S.</i>					
" 17	14235	E. Burnham	Bradley Fertilizer Co., Boston.	Potato Fertilizer— Guaranteed..... Found..... Standard.....	..... ..... .....	..... 3·02	
" 17	14236	E. Burnham	G. C. Miller, Middleton, N.S.	Bone Fertilizer— Guaranteed..... Found..... Standard.....	..... ..... 3·29	3½ to 4½ 3·91 4·00	

Inland Revenue—Adulteration of Food.

of 83 Samples of Fertilizers.

RESULTS OF ANALYSIS.							Number of Sample.	Analyst.
Phosphoric Acid.					Potash.	Moisture.		
Soluble in Water.	Revert-ed or Citrate Soluble.	In-soluble.	Total.	Total Avail-able.				
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
2.79			7.58		4.70 to 5.21	18.75	14224	Maynard Bowman, official analyst, Halifax.
3.20	0.82	3.97	7.99	7.99	4.50 4.81	17.45		
2.48			10.22		2.14 to 2.44	14.26	14225	do
3.33	1.98	5.24	10.55	10.55	2.10 1.89	12.15		
7 to 9	1½ to 3	2 to 4	10½ to 16		2 to 3½	15 to 18.75	14226	do
5.82			11.88		2.52	12.96		
5.88	4.61	1.08	11.57		1.68	0.50		
6 to 8				10 to 12			14227	do
2.86			8.56		1.75	15.00		
3.52	1.60	2.24	7.36	7.36	1.24	15.90		
1.44			19.44			4.90	14228	do
			20.66			6.26	14229	do
6.02			12.12		1.42	17.73	14230	do
6.39			11.09		2.90	16.45	14231	do
2.99			6.95		6.53 to 8.00	19.87	14232	do
3.33	1.34	2.69	7.36	7.36	7.02 6.93	16.95		
			20.14			10.12	14233	do
	3.39	17.08	20.47	20.47		8.60		
			20.01			7.38	14234	do
5.48			10.68		1.86	14.77	14235	do
0.39			19.25 to 21		2½ to 3	7.65	14236	do
0.45	4.67	14.07	19.62	19.19	1.74	7.10		

RESULTS of the Examination

Date of Collection.	Number of Sample.	NAME AND ADDRESS OF		Name or Brand of Fertilizer.	Nitrogen.	
		Vendor.	Manufacturer or Furnisher as given by Vendor.		Total, including that of Nitric Acid or Ammonia, if present.	Total calculated as Ammonia.
1894.		<i>Digby, N.S.—Con.</i>			p. c.	p. c.
May 17	14237	E. Burnham.....	Bradley Fertilizer Co.	New Method— Guaranteed..... Found..... Standard.....		3 73
		<i>Middleton, N.S.</i>				
" 19	14238	G. C. Miller.....	Vendor.....	Bone Fertilizer— Guaranteed..... Found..... Standard.....	3 29	3½ to 4½ 3 01 4 00
" 19	14239	G. C. Miller.....	do.....	Potato Fertilizer— Guaranteed..... Found..... Standard.....	2 51	4 to 5 2 79 3 05
" 19	14240	O. Wheelock.....	Pidgeon Fertilizer Co., Windsor, N.S.	Potato Manure— Guaranteed..... Found..... Standard.....	3 21	4 to 5 3 81 3 90
" 21	14241	Pidgeon Fertilizer Co., Windsor, N.S. <i>Hantsport.</i>	Vendors.....	Ground Bone— Guaranteed..... Found..... Standard.....		3 05 to 4 4 98 4 83
" 21	14242	J. B. North.....	Pidgeon Fertilizer Co	Ground Bone— Guaranteed..... Found..... Standard.....	3 98	3 05 to 4 3 84 4 83
" 21	14243	H. Salter.....	Vendor.....	Excelsior Grain Fertilizer— Guaranteed..... Found..... Standard.....		3 51
" 21	14244	J. Smith, Falmouth, N.S. <i>Truro, N.S.</i>	H. Salter, Hantsport.	Potato Fertilizer— Guaranteed..... Found..... Standard.....	0 71	3 21 0 86
" 23	14245	Archibald & Blanchard.	Vendors.....	Ground Bone— Guaranteed..... Found..... Standard.....		3 93
" 23	14246	S. Archibald & Sons..... <i>St. John, N.B.</i>	do.....	Ground Bone— Guaranteed..... Found..... Standard.....	3 69	3 99 4 48
April 5	6460	J. McMulkin.....	E. Frank Coe, New York.	Standard Fertilizer— Guaranteed..... Found..... Standard.....	1 72	
" 5	6461	J. McMulkin.....	do.....	Grass & Grain Fertilizer— Guaranteed..... Found..... Standard.....	1 31	

Inland Revenue—Adulteration of Food.

of 83 Samples of Fertilizers—*Continued.*

RESULTS OF ANALYSIS.							Number of Sample.	Analyst.
Phosphoric Acid.					Potash.	Moisture.		
Soluble in Water.	Reverted or Citrate Soluble.	In-soluble.	Total.	Total Available.				
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
5.74			10.86		3.57	16.00	14237	Maynard Bowman, official analyst, Halifax.
1.05 0.45	4.67	14.07	19.25 to 21 16.59 19.19	19.19	2½ to 3 3.75 1.74	8.65 7.10	14238		do
7.89 7.99			9 to 11 8.39 7.99	8 to 10 7.99	6½ to 8 5.42 5.79	16.31 17.40	14239	do
1.52 2.56	1.02	2.30	5.46 5.88	5 to 6 5.88	6 to 8 4.25 4.11	17.29 12.40	14240	do
	7.68	16.44	23½ to 24 23.84 24.12		.01 to .02	10.10 9.65	14241	do
	7.68	16.44	23½ to 24 21.16 24.12		.01 to .02	8.29 9.65	14242	do
1.84			5.42		2.74		14243	do
5.26 2.40	1.12	0.16	6.42 3.68	3.68	2.12 3.18	10.60	14244	do
			20.82			9.69	14245	do
	6.08	12.79	20.22 18.87	18.87		9.61 8.90	14246	do
7.38	2.30	2.75	12.43		1.21		6460	Prof. E. B. Kenrick, official analyst, Win- nipeg.
7.48	3.57	2.92	13.97		1.67		6461	

RESULTS of the Examination

Date of Collection.	Number of Sample.	NAME AND ADDRESS OF		Name or Brand of Fertilizer.	Nitrogen.	
		Vendor.	Manufacturer or Furnisher as given by Vendor.		Total, including that of Nitric Acid or Ammonia, if present.	Total calculated as Ammonia.
1894.		<i>St. John, N.B.</i>				
April 5	6462	J. Horncastle & Co.....	T. Reid, St. John...	Reid's Superphosphate— Guaranteed..... Found..... Standard.....	..... ..... 2·88 2·91	..... ..... 5·95 3·55
"	5	6463 Provincial Chemical Fertilizer Co.	Vendors.....	Bone Meal— Guaranteed..... Found..... Standard.....	..... 3·25..........	....................
		<i>Sussex, N.B.</i>				
"	12	6464 S. H. White & Co.	Nichols Chemical Co.	Royal Canadian— Guaranteed..... Found..... Standard.....	..... 4·65 3·48	..... 4 to 5 4·22
"	12	6465 J. A. Campbell.....	Pidgeon Fertilizer Co., Windsor, N.S.	Eureka Phosphate— Guaranteed..... Found..... Standard.....	..... 2·01 2·56	..... 3 to 4 3·11
"	19	6466 D. Semple, East Florenceville.	J. S. Reese & Co., Baltimore, Md., U.S.	Pilgrim Brand— Guaranteed..... Found..... Standard.....	..... 1·29..........	....................
		<i>Woodstock, N.B.</i>				
"	20	6467 Union Foundry Co.	E. Frank Coe.....	Standard Brand— Guaranteed..... Found..... Standard.....	..... 1·86..........	....................
"	20	6468 W. F. Dibblee & Son...	Bradley Fertilizer Co.	Bradley's X L Superphosphate— Guaranteed..... Found..... Standard.....	2·07 to 2·90 2·51 2·10	2½ to 3½ 2·55
		<i>Fredericton.</i>				
"	21	6469 D. W. Hoegg.....	Provincial Chemical Fertilizer Works, St. John.	Imperial Superphosphate— Guaranteed..... Found..... Standard.....	..... 1·69..........	....................
"	21	6470 G. Hatt & Son.....	Jack & Bell, Halifax	Ceres Superphosphate— Guaranteed..... Found..... Standard.....	..... 2·21 2·36	2·01 to 2·68 2·87
"	21	6471 J. F. Vanbuskirk.....	Pidgeon Fertilizer Co., Windsor, N.S.	Potato Manure— Guaranteed..... Found..... Standard.....	..... 2·70 3·21	..... 4 to 5 3·90

Inland Revenue—Adulteration of Food.

of 83 Samples of Fertilizers—*Continued.*

RESULTS OF ANALYSIS.							Number of Sample.	Analyst.
Phosphoric Acid.					Potash.	Moisture.		
Soluble in Water.	Reverted or Citrate Soluble.	In-soluble.	Total.	Total Available.				
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
0·39	2·96	10·15	13·50				6462	Prof. E. B. Kenrick.
1·65	4·56	7·75	13·95		1·05			
0·16	4·73	7·55	12·44	12·44	1·39	24·15		
0·31	9·70	14·30	24·31				6463	
8·93	1·03	1·40	11·36	9 to 11	5 to 6		6464	
7·80	1·79	2·24	11·83	9·59	5·71	9·50		
6 to 8			10 to 12		2½ to 3		6465	
2·88	3·30	2·47	8·65		2·06			
3·52	1·60	2·24	7·36	7·36	1·24	15·90		
2·45	6·71	0·95	10·11		2·82		6466	
7·88	2·68	2·10	12·66		1·67		6467	
8·73	1·82	1·73	12·28	10 to 12	1 to 2		6468	
8·32	1·12	1·75	11·20	11·20	2·16	13·65		
7·40	1·35	3·02	11·77		1·82		6469	
5·01	0·67	3·20	8·88		2·14 to 2·44		6470	
3·33	1·98	5·24	10·55	10·55	2·37	12·15		
3·15	1·72	2·15	7·02	5 to 6	6 to 8		6471	
2·56	1·02	2·30	5·88	5·88	4·11	12·40		

RESULTS of the Examination

Date of Collection.	No. of Sample.	NAME AND ADDRESS OF		Name or Brand of Fertilizer.	Nitrogen.	
		Vendor.	Manufacturer or Furnisher as given by Vendor.		Total, including that of Nitric Acid or Ammonia, if present.	Total calculated as Ammonia.
1894.		<i>Cowansville, P.Q.</i>			p. c.	p. c.
April 10	13176	Boright & Teel	Standard Fertr. Co., Smith's Falls, Ont.	Special Fertilizer— Guaranteed	3½ to 4½	3·80
				Found	3·33	4·04
" 10	13177	Boright & Teel	do ..	Standard Fertilizer— Guaranteed	2½ to 3½	2·08
		<i>Sherbrooke.</i>		Found	2·78	3·37
" 11	13178	Lucke & Mitchell	Nichols & Co., Capelton, Ont.	Victor— Guaranteed	2 to 3	2·09
				Found	2·19	2·66
" 11	13179	Lucke & Mitchell	do ..	Reliance— Guaranteed	2 to 3	1·79
				Found	2·14	2·60
" 11	13180	Lucke & Mitchell	do ..	Royal Canadian— Guaranteed	4 to 5	4·22
				Found	3·48	4·22
" 11	13181	Coderre Fils et Cie	Pacific Guano Co., Boston.	Soluble Pacific Guano— Guaranteed	2·75 to 3·50	4·79
		<i>Stanstead, P.Q.</i>		Found	3·95	4·79
" 12	13182	H. A. Channell	Nichols & Co., Capelton.	Royal Canadian— Guaranteed	4 to 5	4·70
				Found	3·48	4·22
" 12	13183	C. H. Taylor	Pacific Guano Co., Boston.	Pacific Guano— Guaranteed	2·75 to 3·50	2·72
		<i>Waterloo, P.Q.</i>		Found	3·95	4·79
" 13	13184	Allan, Taylor & Co.	Nichols & Co., Capelton, Que.	Royal Canadian— Guaranteed	4 to 5	2·47
				Found	3·48	4·22
" 13	13185	Allan, Taylor & Co.	do ..	Reliance— Guaranteed	2 to 3	2·39
				Found	2·14	2·60
" 13	13186	Robinson & Tenny	do ..	Royal Canadian— Guaranteed	4 to 5	4·35
				Found	3·48	4·22
" 13	13187	Robinson & Tenny	Standard Chem. Fertilizer Co., Smith's Falls, Ont.	Special— Guaranteed	3½ to 4½	4·04
				Found	3·33	4·04
" 13	13188	Robinson & Tenny	do ..	Standard Fertilizer— Guaranteed	2½ to 3½	2·78
				Found	2·78	3·37

Inland Revenue—Adulteration of Food.

of 83 Samples of Fertilizers—*Continued.*

RESULTS OF ANALYSIS.							Number of Sample.	Analyst.
Phosphoric Acid.					Potash.	Moisture.		
Soluble in Water.	Reverted or Citrate Soluble.	Insoluble.	Total.	Total Available.				
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
5·28	1·28	4·31	10 to 12	8 to 10	6 to 9	11·00	13176	Dr. J. B. Edwards, official analyst, Mont- real.
8·76	1·05	3·62	10·87	9·81	6·23	4·45		
6·72	2·55	5·28	11 to 13	9 to 11	2 to 2½	15·04	13177	
9·72	1·67	4·60	14·55	11·39	2·99	5·01		
6·24	0·95	3·36	10·55	7 to 9	3 to 4	10·75	13178	
7·36	1·28	3·32	11·96	8·64	3·96	10·50		
5·28	2·87	3·68	11·83	6 to 7	2 to 3	11·95	13179	
2·68	4·80	2·56	10·04	7·48	2·29	12·70		
9·43	1·61	2·39	13·43	9 to 11	5 to 6	10·05	13180	
7·80	1·79	2·24	11·83	9·59	5·33	9·50		
7 to 9	1½ to 3	2 to 4	10½ to 16	9 to 11	2 to 3½	15 to 18·75	13181	
6·88	3·03	1·60	11·51	5 to 6	1·68	13·80		
5·88	4·61	1·08	11·57	9 to 11	5 to 6	0·50	13182	
7·51	1·76	2·72	10·23	9·59	6·85	10·70		
7·80	1·79	2·24	11·83	9·59	5·33	9·50	13183	
7 to 9	1½ to 3	2 to 4	10½ to 16	9 to 11	2 to 3½	15 to 18·75		
5·28	4·14	2·57	11·99	2 to 3	2·70	14·30	13184	
5·88	4·61	1·08	11·57	5 to 6	1·68	0·50		
8·31	1·13	2·39	11·83	9 to 11	5 to 6	11·00	13185	
7·80	1·79	2·24	11·83	9·59	3·13	9·50		
7·35	1·13	4·31	12·79	6 to 7	2 to 3	9·75	13186	
2·68	4·80	2·56	10·04	7·48	2·97	12·70		
9·11	·33	2·55	11·99	9 to 11	5 to 6	11·25	13187	
7·80	1·79	2·24	11·83	9·59	4·13	9·50		
5·12	0	3·77	10 to 12	8 to 10	6 to 9	13·75	13188	
8·76	1·05	3·62	8·89	9·81	7·13	4·45		
6·24	1·27	3·68	11 to 13	9 to 11	2 to 2½	15·00	13188	
9·72	1·67	4·60	11·19	11·39	2·28	5·01		

RESULTS of the Examination

Date of Collection.	Number of Sample.	NAME AND ADDRESS OF		Name or Brand of Fertilizer.	Nitrogen.	
		Vendor.	Manufacturer or Furnisher as given by Vendor.		Total, including that of Nitric Acid or Ammonia, if present.	Total calculated as Ammonia.
1894.		<i>Montreal.</i>			p. c.	p. c.
April 26	13189	W. Evans..	Nichols & Co.....	Bone Phosphate— Guaranteed..... Found..... Standard.....		
" 26	13190	W. Evans.....	W. A. Freeman, Hamilton.	Bone Meal— Guaranteed..... Found..... Standard.....	5.24	3 to 5 5.33 6.37
" 27	13191	Brodie & Harvie..	Standard Fertilizer Co., Smith's Falls, Ont.	No. 1 Fertilizer— Guaranteed..... Found..... Standard.....		1½ to 2½
" 27	13192	Brodie & Harvie.....	do	Fruit Tree Fertilizer— Guaranteed..... Found..... Standard.....	2.41	2.93
" 27	14053	W. A. Freeman, Hamil- ton, O.	Vendor.....	Bone and Potash— Guaranteed..... Found..... Standard.....		2 to 3 2.64 3.33
" 27	14054	W. A. Freeman, Hamil- ton, O.	do	Potato Manure— Guaranteed..... Found..... Standard.....		3 to 4 4.05 4.25
" 27	14055	W. A. Freeman, Hamil- ton, O.	do	Pure Bone Meal— Guaranteed..... Found..... Standard.....		3 to 5 5.09 6.37
" 27	14056	W. A. Freeman, Hamil- ton, O.	do	Early Vegetable— Guaranteed..... Found..... Standard.....		6 to 8 4.20 7.97
" 27	14057	W. A. Freeman, Hamil- ton, O.	do	Sure Growth— Guaranteed..... Found..... Standard.....		3½ to 5 3.32 5.01
" 19	14058	Wm. Rennie, Toronto..	W. Davies, Toronto.	Blood Manure— Guaranteed..... Found..... Standard.....		8.70 6.88 8.55
" 19	14059	Steele, Briggs, Marcon Co., Toronto.		Nitrate of Soda— Guaranteed..... Found..... Standard.....		19.00 18.36
" 19	14060	Steele, Briggs, Marcon Co., Toronto.	H. & E. Albert, Lon- don, England.	Thomas Phosphate Powder— Guaranteed..... Found..... Standard.....		0.12
" 19	14061	Steele, Briggs, Marcon Co., Toronto.	Nichols Chem'l. Co., Capelton, Que.	Royal Canadian— Guaranteed..... Found..... Standard.....		4 to 5 4.77 4.22

Inland Revenue—Adulteration of Food.

of 83 Samples of Fertilizers—*Continued.*

RESULTS OF ANALYSIS.							Number of Sample.	Analyst.
Phosphoric Acid.					Potash.	Moisture.		
Soluble in Water.	Revert- ed or Citrate Soluble.	In- soluble.	Total.	Total Avail- able.				
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
				15 to 17			13189	Dr. J. B. Edwards.
11·99	3·21	3·98	19·18			12·60		
14·07	0·32		14·39	14·39		17·00		
			23 to 25				13190	
	8·48	14·07	22·55			7·20		
0·08	6·72	16·71	23·51	23·51		7·60		
			12 to 14	9 to 11	1 to 1½		13191	
8·00	2·23	3·20	13·43		1·78	17·4		
10·68	1·47	5·12	17·27	12·15	1·95	5·40		
			10 to 12	8 to 10	8 to 10		13192	
4·48	2·23	4·80	11·51		8·86	9·9		
8·64	1·40	3·84	13·88	10·04	9·81	4·30		
			9 to 10		6 to 8		14053	Dr. W. H. Ellis, official analyst, Toronto.
4·60	1·80	2·30	8·70		2·96	9·90		
3·92	2·08	3·28	9·28	9·28	16·18	1·55		
			8 to 10		5 to 7		14054	
5·60	2·46	1·79	9·85		5·23	5·90		
5·60	3·36	1·60	10·56	10·56	8·69	4·55		
			23 to 25				14055	
trace.	9·73	13·69	23·42		0·23	8·10		
0·08	6·72	16·71	23·51	23·51		7·60		
			9 to 10		6 to 8		14056	
7·33	1·63	1·024	9·98		8·69	8·88		
5·76	0·57	0·79	7·12	7·12	10·18	1·55		
			8 to 10		3 to 4		14057	
5·93	3·09	0·96	9·98		1·95			
5·99	3·93	1·92	11·84	11·84	5·18	2·25		
			8·00				14058	
0·37	5·61	5·25	11·20		0·31	4·68		
			9·16	9·16	0·37	9·07		
							14059	
						1·45		
						0·15		
							14060	
0·0	2·94	6·97	9·91		0·17	0·100		
0·0	8·57	7·80	16·37			0·25		
				9 to 11	5 to 6		14061	
7·26	2·33	1·03	10·62		6·57	7·21		
7·80	1·79	2·24	11·83	9·59	5·33	9·50		

RESULTS of the Examination

Date of Collection.	Number of Sample.	NAME AND ADDRESS OF		Name or Brand of Fertilizer.	Nitrogen.		
		Vendor.	Manufacturer or Furnisher as given by Vendor.		Total, including that of Nitric Acid or Ammonia, if present.	Total calculated as Ammonia.	
							p. c.
1894.							
April 19	14068	J. S. Pearce & Co., Lon.	Michigan Carbon Works, Detroit.	Bone Meal— Guaranteed Found Standard	1.48	1.79	
" 19	14069	J. Tanton, London.....	W.A. Freeman, Hamilton.	Farmer's Pride— Guaranteed Found Standard	3.08	3.74	
" 19	14070	J. Tanton, London.....	do do	Grape Food— Guaranteed Found Standard	3.86	4.68	
" 19	14071	J. Tanton, London.....	do do	Animal Fertilizer— Guaranteed Found Standard	6.07	7.36	
" 19	14079	J. S. Pearce & Co.....	F. Rowlin, Hamilton	Animal Fertilizer— Guaranteed Found Standard	7.81	9.48	
" 19	14080	J. S. Pearce & Co..... <i>Woodstock, Ont.</i>	do do	Bone Meal— Guaranteed Found Standard	6.22 2.98	7.55 3.62	2.1
" 18	12976	J. Pike.....	Steele, Briggs, Marcon Co., Toronto.	Guano— Guaranteed Found Standard	2.00	2.43	
" 18	12977	J. Pike.....	do	Bone Dust— Guaranteed Found Standard	3.05	3.70	
" 18	12978	J. L. Grant & Co., Ingersoll, Ont.	Vendors.....	Champion— Guaranteed Found Standard	6.68 7.05 7.68	9.00 8.56 9.33	
" 18	12979	J. L. Grant & Co., Ingersoll, Ont. <i>London, Ont.</i>	do	Ingersoll Fertilizer— Guaranteed Found Standard	6.68 7.40 7.97	9.00 8.99 9.66	
" 18	12980	J. Tanton	W. A. Freeman, Hamilton.	Farmer's Pride— Guaranteed Found Standard	3.57	4.34	
" 18	12981	J. Tanton.....	W. A. Freeman, Hamilton.	Animal Fertilizer— Guaranteed Found Standard	4.66	5.66	
" 18	12982	Pearce & Co.....	Michigan Carbon Works, Detroit, Mich.	Bone Meal— Guaranteed Found Standard	2.98	3.62	

Inland Revenue—Adulteration of Food.

of 83 Samples of Fertilizers—*Continued.*

RESULTS OF ANALYSIS.							Number of Sample.	Analyst.	
Phosphoric Acid.					Potash.	Moisture.			
Soluble in Water.	Reverted or Citrate Soluble.	In-soluble.	Total.	Total Available.					
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.			
0·00	9·08	21·37	30·45		0·097	3·05	14068	Dr. W. H. Ellis.	
2·47	3·87	2·62	8·96		2·40	2·26	14069		
3·60	6·51	1·15	11·26		3·50	3·28	14070		
2·20	3·82	3·58	9·00		0·54	3·55	14071		
0·53	7·98	2·56	11·07		0·35	6·35	14079		
0·40 traces.	9·33 8·15	3·83 12·48	28·30 13·56 20·63	20·63	0·33 0·12	5·15 9·45	14080		
0·57	8·21	14·38	21·16		0·40	6·60	12976		F. T. Harrison, official analyst, London, Ont.
0·32	5·95	13·82	20·09			5·70	12977		
0·83 trace.	4·04 5·11	7·99 7·36	3·00 12·86 12·47	12·47	5·00 2·11 3·15	6·80 4·95 7·45	12978		
0·96 trace.	4·07 5·95	8·53 8·76	3·99 13·56 14·71	14·71		8·05	12979		
2·05	2·82	4·47	9·34		2·47	2·10	12980		
2·17	6·28	2·55	11·00		0·50	3·05	12981		
0·38	4·35	21·62	26·36			5·05	12982		

RESULTS of the Examination

Date of Collection.	Number of Sample.	NAME AND ADDRESS OF		Name or Brand of Fertilizer.	Nitrogen.	
		Vendor.	Manufacturer or Furnisher as given by Vendor.		Total, including that of Nitric Acid or Ammonia if present.	Total calculated as Ammonia.
April 18	12983	<i>London, Ont.</i> Canadian Chemical Fertilizer Works.	Selves	Superphosphate— Guaranteed..... Found..... Standard.....		
" 18	12984	Canadian Chemical Fertilizer Works.	do	Prolific Brand— Guaranteed..... Found..... Standard.....	2.04	2.00 2.48
" 19	12985	Geo. Keith.....	Imported	Guano— Guaranteed..... Found..... Standard.....	2.04	2.48
" 19	12986	Geo. Keith.....		Fertilizer (made from oil cake)— Guaranteed..... Found..... Standard.....	2.92	3.55
May 16	14229	Farmers' and Citizens' Co-operative Co.	Bowker Fertilizer Co. Boston.	Bowker's Bone Meal Guaranteed..... Found..... Standard.....	5.96	7.24
" 16	14230	Farmers' and Citizens' Co-operative Co.	Provincial Chemical Fert. Co., St. John, N.B.	Potato Phosphate— Guaranteed..... Found..... Standard.....		2.01
" 16	14231	Farmers' and Citizens' Co-operative Co.	do	Imperial Superphosphate— Guaranteed..... Found..... Standard.....		2.71
" 16	14232	E. Allan.....	Jack & Bell, Halifax, N.S.	Apple Tree Phosphate— Guaranteed..... Found..... Standard.....		3.25 to 4.03 3.27
" 16	14233	Farmers' and Citizens' Co-operative Co.	W. P. Churchill, Yarmouth, N.S.	Ground Bone— Guaranteed..... Found..... Standard.....	2.92	3.54
					3.80	4.60 4.62

Inland Revenue—Adulteration of Food.

of 83 Samples of Fertilizers—*Concluded.*

RESULTS OF ANALYSIS.							Number of Sample.	Analyst.
Phosphoric Acid.					Potash.	Moisture.		
Soluble in Water.	Reverted or Citrate Soluble.	Insoluble.	Total.	Total Available.				
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
				11 to 13			12983	F. T. Harrison.
7·16 8·12	2·31 1·80	7·29 6·20	16·76 16·12	9·92		9·95 14·85		
				6 to 7	2 to 3		12984	
3·84 4·48	1·41 1·60	3·71 3·52	8·96 9·60	6·08	2·22 1·87	4·60 6·65		
2·30	5·12	15·61	23·03		2·50	6·10	12985	
0·39	1·82	0·39	2·60		0·92	10·65	12986	
2·40	3·23	16·95	22·58			5·82	14229	Dr. M. Fiset, Official Analyst, Quebec.
7·20	0·83	6·87	14·90		4·29	17·34	14230	
7·99	2·97	4·00	14·96		1·41	16·60	14231	do
4·64 3·33	2·80 1·34	3·67 2·69	11·11 7·36	7·36	6·53 to 8·00 7·99 6·93	19·46 16·95	14232	do
0·48	2·64 3·39	20·63 17·08	23·75 20·47	20·47		9·34 8·60	14233	do

58 Victoria.

Sessional Papers (No. 8.)

A. 1895

REPORT

OF THE

MINISTER OF AGRICULTURE

FOR THE

DOMINION OF CANADA

FOR THE CALENDAR YEAR

1894

PRINTED BY ORDER OF PARLIAMENT



OTTAWA

PRINTED BY S. E. DAWSON, PRINTER TO THE QUEEN'S MOST
EXCELLENT MAJESTY

1895

[No. 8—1895.] *Price 15 cents*

Department of Agriculture.

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Department of Agriculture.

REPORT

OF THE

MINISTER OF AGRICULTURE

1894.

.....

To His Excellency the Right Honourable Sir John Campbell Hamilton-Gordon, Earl of Aberdeen ; Viscount Formartine, Baron Haddo, Methlic, Tarves und Kellie, in the Peerage of Scotland ; Viscount Gordon of Aberdeen, County of Aberdeen, in the Peerage of the United Kingdom ; Baronet of Nova Scotia, etc., etc., Governor General of Canada.

MAY IT PLEASE YOUR EXCELLENCY,—

I have the honour to submit the report of the Department of Agriculture, up to 31st October, 1894.

I.—GENERAL REMARKS.

The legislation affecting the administration of this department during the last session consisted of Chap. 36, 57-58 Vic., intituled: "An Act further to amend the General Inspection Act."

Also: Chap. 37, 57-58 Vic., intituled: "An Act in restraint of fraudulent sale or marking."

A synopsis of the operations of the various branches and divisions comprised in my department is laid before you under their respective headings; and I am happy to state the work in each has been efficiently carried on.

II.—AGRICULTURE.

The season of 1894 was characterized in many parts of the Dominion by unusual drought. In the central and western districts of Ontario the dry weather began shortly before the fall wheat harvest, but did not affect that important crop, the yield of which was good, and above the average of past years. The continued influence of dry weather resulted, however, in a shortening of the straw of spring sown grain, but did not materially lessen the crop. The yield of spring wheat all through Ontario as reported was above the average; but barley and oats

although both have given larger returns than in 1893, have fallen somewhat below the average of past records. The hay crop was a little less than the average; and during the latter part of the summer the pasture fields were parched to such an extent as to lessen for a time the output of dairy products; but later and copious rains restored them to their usual freshness. The eastern portion of the province had sufficient rainfall throughout the season, and crops of all sorts gave encouraging yields. The fruit crop was not heavy, but the quality generally good.

In most parts of Quebec the hay crop was satisfactory, while oats, barley, pease and wheat gave fair returns, the samples being unusually good and plump. The manufacture of dairy products in this province is still increasing, and the results in this branch of agriculture are everywhere encouraging.

In the Maritime provinces the hay crop was good, and was well saved, but the protracted dry weather, which followed the hay harvest produced a short growth of straw and in many instances lessened the yield of grain, although the kernel was unusually plump and well developed. The area of land devoted to fruit growing, especially in many localities in Nova Scotia, is being rapidly extended, and this industry is reported as giving profitable returns.

The wheat crop in Manitoba gave a better result than was expected from early estimates, and the quality of the grain is unusually good. The very low prices which continue to prevail have necessarily had a depressing effect on this branch of farming, and are leading many farmers to give increased attention to other crops, and to the raising of cattle, sheep, swine and poultry; also to the increased production of dairy products, especially butter.

In the eastern portion of the North-west Territories the rain was less than in Manitoba; and the drought seriously diminished the average yield of grain; but in some localities where local showers fell, the crops were good. In most of the northern and western parts of the Territories, the general returns were very satisfactory.

In many sections, in the coast climate of British Columbia, which were not affected by the unusual June floods, the crops were good; but in the interior drier districts they were light, owing to drought. On the lower lands in the river valleys, which were for a time submerged, the growing crops were destroyed, and the second sowing of grain was made as soon as the floods subsided, but it did not fully mature. The progress of fruit growing in that province is very gratifying. There is an increased acreage in hops, and in some districts greater attention is being paid to the raising of cattle, and the manufacture of dairy products.

Department of Agriculture.

CATTLE TRADE.

IMPORTATION OF LIVE STOCK.

The reported importation and inspection of cattle into the Dominion during the past season were as follow :—

4,132 cattle; 36,771 sheep; 197 swine; 1,663 horses and mules. They were brought in as shown below, viz. :—

	Cattle.	Sheep.	Swine.	Horses and Mules.
<i>By Sea.</i>				
Quebec and Point Lévis	17	299	22	
Halifax	8	2		9
St. John, N.B.	2			
Victoria, B.C.	*261	†29,897		180
<i>By Land.</i>				
Ontario (Point Edward).....	22		44	
Emerson and Gretna.	262	363	131	671
Manitou	19			236
Deloraine		800		11
Fort Macleod				213
Maple Creek	256			150
Wood Mountain.....				48
Lethbridge.	58	5,410		4
Estevan.	181			
Milk River (N.-W.M.P.)	3,043			
Kootenay, B.C.	3			141
Making a total of.....	4,132	36,771	197	1,663

NOTE.—*200 for slaughter. †All for slaughter.

QUEBEC AND MARITIME PROVINCES CATTLE QUARANTINE.

The importation via Quebec, Halifax and St. John, of stock for breeding purposes, is shown by the following table, which gives the total number of animals arriving and their destinations :—

For Canada—	1893.	1894.
Cattle.....	12	27
Sheep.....	1,911	189
Swine.....	17	22
For United States—		
Cattle.....		
Sheep.....	1,100	112
Swine.....	2	

No disease was discovered in any of the animals, and they were all discharged from quarantine in perfect health, cattle after a detention of 90 days, and sheep after 15 days at the sea-board.

ONTARIO CATTLE QUARANTINE.

The importations, for breeding purposes only, at Point Edward quarantine, Ontario, were 22 cattle valued at \$1,850, and 44 swine valued at \$1,270.

The Cattle Quarantine Regulations admitting of no exceptions, it was decided that the Canadian cattle which had been exhibited at the World's Columbian Exposition, Chicago, must, on their return to Canada, undergo the ordinary detention, and for this purpose special additional provision was made at Point Edward for receiving and caring for the same. I am happy to report that all remained healthy while in quarantine, and were finally discharged, with the exception of one animal which died from an ordinary disease.

The necessity of exercising and enforcing quarantine was evidenced in the case of the returned swine, amongst which I regret to say the disease of Hog Cholera broke out on the 1st November, and ceased 10th December, 1893. This disease was of a virulent type: but by prompt isolation and the free use of disinfectants the death rate was reduced to a very low percentage, although some of the most valuable animals succumbed to it.

NORTH-WEST CATTLE QUARANTINES.

The reported number of cattle imported into Manitoba and the North-west Territories and inspected during the season, through the different ports of entry, appears in the general table already given above, the returns being made by the veterinary inspectors at the various stations. I am informed by Mr. McFadden, veterinary inspector at Emerson, that the quality and condition of the stock brought in at that point this year was higher and better than in former years. The opening of the Sault line of the Canadian Pacific Railway, which crosses the Canadian boundary line at North Portal, has afforded a means of ingress for settlers from South Dakota and adjoining states into our North-west, who, prior to such means of transport, had to bring their cattle in by way of Emerson, and thus has materially lowered the number of stock entering at the latter point for quarantine.

The reservation set apart for cattle quarantine purposes along the boundary in the North-west Territories, defined by Order in Council of 17th September, 1892, was in May last changed, and a new Order in Council, dated 9th May, 1894, defines it as "all that triangular tract of country bounded on the west by the main stream of Willow Creek, on the east by the north fork of the same creek, and on the north by a small creek or coulée emptying into the said North Fork." The reasons necessitating this were the remoteness of the original reserve from the eastern portion of the district which it served; its difficulty of access, scarcity of water and the inconvenience, consequent on the location to the Mounted Police charged with the enforcement of the quarantine regulations, of keeping an effective watch on that part of the country.

Under the terms of an Order in Council of 24th October, 1894, importers are now allowed to enter animals into the quarantine at North Portal and Emerson during the winter months, but entirely at their own risk and cost, importation having up to that date been prohibited between the dates of 30th September and 31st March.

Department of Agriculture.

BRITISH COLUMBIA CATTLE QUARANTINE.

The number of cattle imported into British Columbia was 264, of which 261 came in by sea to Victoria, and 3 were brought over by land at Kootenay.

The following table gives comparative figures:—

At Victoria—	1893.	1893.
Cattle.....	7	261
Sheep.....	29,274	29,897
Horses.....	173	144
Swine.....	2	...
Mules.....	8	36
At Kootenay—		
Cattle (stock purposes).....	49	3
Horses.....	8	141

It has been found desirable in the interest of incoming settlers to the province of British Columbia, bringing in stock, to establish cattle quarantine stations at certain points along the international boundary line.

Owing to the very mountainous nature of the province and its inaccessibility, except at certain points where there are passes, trails, or roads leading to the interior, the following places have been selected as being most desirable for the establishment of such stations:—

New Westminster,	Fort Shepherd,
Douglas,	Waneta,
Huntingdon,	Bedlington,
Osoyoos,	Kootenay.

All, with the exception of Fort Shepherd, are Customs ports.

The fullest possible information as to the nature of the surrounding country, and a report as to the securing of most suitable sites for cattle quarantine stations has been requested from the respective Customs officers at the above named ports of entry.

BEEF CATTLE ADMITTED INTO BRITISH COLUMBIA.

Information reaching me last spring that a blockade of the Canadian Pacific Railway caused by freshets, had created a "beef famine" at Vancouver and vicinity, I considered it advisable to move an Order of Your Excellency in Council, to provide temporary arrangements for allowing the importation of cattle from the United States for immediate slaughter at Vancouver. In the absence of contagious disease on the Pacific coast and in virtue of the provisions of the "Animal Contagious Diseases Act," such Order allowed the selection and fitting with necessary appliances, of suitable places for the slaughter of such animals as might be imported for immediate food needs, taking the necessary precaution of having such securely fenced in and declared "infected places," with the understanding that animals taken into such inclosures were not to be removed alive. These facilities, extended to Nanaimo, Kaslo and Nelson, I am informed gave the much needed relief to the inhabitants; and as soon as the transit facilities for the importation of cattle from other parts of the Dominion were restored in the province the temporary facilities for bringing in cattle without quarantine were cancelled on the 25th of July last.

EXPORTATION OF LIVE STOCK.

The exportation of live stock for the calendar year 1894, to the United Kingdom, as reported by the inspectors, and shipped entirely from Montreal, was:—

Cattle.....	82,217
Sheep	121,304

The following table gives comparisons for the last ten years of shipments to the United Kingdom:

	Cattle.	Sheep.
1884.....	61,843	67,197
1885.....	69,158	38,534
1886.....	64,555	94,297
1887.....	64,621	35,473
1888.....	60,828	46,167
1889.....	85,053	58,983
1890.....	122,182	43,780
1891.....	118,947	32,157
1892.....	98,755	15,932
*1893.....	80,899	1,780
1894.....	82,217	121,304

*For ten months only.

It will be noticed that the number of sheep exported has been very largely increased, evidencing the fact that Canadian mutton is finding a largely growing favour in the markets of the United Kingdom.

Professor McEachran reports that not a single animal exported showed any sign, in the least degree suspicious of contagious disease. The inspections before shipment were rigidly carried out. 80 cattle and 17 sheep were either detained or rejected by the inspectors; 16 of which were lame or injured in the land transport, 2 were in poor condition from age, 2 were found affected with tuberculosis, one with mange, and 59 with lumpjaw. The sheep rejected, were lame or injured. The animals collected for shipment came from all parts of the Dominion, with the exception of British Columbia, and the fact of their freedom from lung disease is an evidence of the healthy state of Canadian cattle. The inspection was in every case, made by daylight.

Mr. McMillan, V. S., who is empowered by my department to inspect stock shipped from Prince Edward Island, reports that 629 cattle, 161 horses, and 718 sheep were duly inspected by him prior to shipment, and all were found to be in a thoroughly healthy condition.

Department of Agriculture.

The total export trade of cattle from the whole Dominion, is shown in the following table, taken from the Trade and Navigation Reports for the *fiscal years* since 1873:—

Year.	Horses.		Cattle.		Sheep.	
	Number-	Value.	Number.	Value.	Number.	Value.
		\$		\$		\$
1874.....	5,399	570,544	39,623	951,269	252,081	702,564
1875.....	4,382	460,672	38,968	823,522	242,488	637,561
1876.....	4,299	442,338	25,357	601,448	141,187	505,538
1877.....	8,306	779,222	22,666	715,750	209,899	583,020
1878.....	14,179	1,273,728	29,915	1,152,334	242,989	699,337
1879.....	16,629	1,376,794	46,569	2,096,696	308,993	983,045
1880.....	21,393	1,880,379	54,944	2,764,437	398,746	1,422,830
1881.....	21,998	2,094,037	63,277	3,461,871	354,155	1,372,127
1882.....	20,920	2,236,637	62,106	2,256,330	311,669	1,228,957
1883.....	13,019	1,633,291	66,396	3,898,028	308,474	1,388,056
1884.....	11,505	1,617,829	89,263	5,681,082	304,403	1,544,005
1885.....	12,310	1,640,506	144,441	7,508,643	335,207	1,264,811
1886.....	16,951	2,232,623	92,661	5,916,551	359,488	1,184,106
1887.....	19,081	2,350,926	116,490	6,521,320	443,628	1,595,350
1888.....	20,505	2,563,407	100,748	5,012,788	395,320	1,283,537
1889.....	17,874	2,226,892	102,980	5,714,526	360,939	1,276,918
1890.....	16,709	2,007,533	81,478	6,952,185	316,013	1,276,999
1891.....	11,868	1,572,564	117,765	8,744,769	299,587	1,150,865
1892.....	11,306	1,484,431	107,180	7,749,399	331,278	1,429,067
1893.....	13,387	1,588,007	107,225	7,745,103	362,455	1,288,540
1894.....	9,414	1,178,006	86,063	6,499,717	234,100	849,651

CANADIAN CATTLE FOR EUROPE.

My attention has been recently called to a paragraph which appeared in a newspaper published in France, to the effect that a shipment of Canadian cattle had been made to Vilette, near St. Malo, in that country. Inquiry on this point shows that 834 cattle were so shipped, that the venture proved profitable, and the cattle were well thought of in France. The high rate of insurance charges on them seems to be a circumstance that militates against this new experiment.

A shipment was also made of 2,761 cattle to Antwerp which proved profitable to the shippers. Prof. McEachran is of opinion that shipments to both these new openings for the cattle trade on the Continent of Europe will be continued and increased next season, if the Belgium embargo is removed.

INVESTIGATION OF ANIMALS' DISEASES.

The Cattle Quarantine officers report that no disease of a serious nature other than Tuberculosis, and the Pictou Cattle Disease, exists in the Dominion, the few minor cases of disease which were reported to my department being found on investigation (which in all cases reported, I immediately ordered to be held), to be only such as are incidental to cattle everywhere.

SCHEDULING CANADIAN CATTLE IN ENGLAND.

The scheduling of Canadian cattle and consequent slaughter on arriving in England, by the Imperial Board of Agriculture in 1892, for cause of the alleged existence in the Dominion of the disease of contagious pleuro-pneumonia, has since been continued. This question has been the subject of voluminous correspondence, and of a very elaborate inquiry by the Board of Agriculture, assisted by assessors. Much evidence was taken, but the results, as specified in the minute of the board, have been found to be very far from conclusive in so far as relates to establishing the position assumed. All investigations made in Canada on each question which has arisen during the year have served to establish that the disease of pleuro-pneumonia does not exist in Canada. It is impossible that such a disease could exist and the fact remain unknown. It appears from the correspondence that the lungs of about a dozen animals out of 193,860 slaughtered at the port of landing have been held for suspicion of pleuro-pneumonia, from the beginning; but the special investigation of the board was made with reference to six animals landed in the year 1894 from the "Toronto," the "Laurentian," the "Lake Superior," the "Mongolian," and the "Assyrian"; and even as respects these animals the investigation practically narrowed itself down to the case of two landed by the "Toronto" and the "Mongolian." There was much conflict of professional opinion as appears from the evidence taken by the board in respect to the lungs of these two animals. The board by its minute affirmed the position that the approximation of the appearance in those specimens is very much nearer than in the case of any of the known diseases affecting the lungs of cattle, and that none of the appearances recorded in these cases can be regarded as foreign to pleuro-pneumonia or is indicative or suggestive of some other disease hitherto not observed. It has been found on the other hand by the professional veterinary advisers of my department that this position is altogether irreconcilable with the facts as they appear in Canada, the whole of which go clearly to show that the lesions in the lungs examined were caused by a form of non-contagious transit-pneumonia, incident to hardships and confinement in transit. No other view can be reconciled with the existing situation in Canada, and this view is supported by important European expert veterinary opinion. I submit the report which I had the honour to make to Your Excellency, in review of the correspondence with the Imperial Government, for official transmission to the Marquis of Ripon, as an appendix to this report, for the information of the Canadian Parliament. It contains as concise a statement as possible of the Canadian case in this controversy, together with a report of all known facts pertaining to it.

TUBERCULOSIS.

Prof. McEachran reports this disease exists in the Dominion, but he considers the percentage of herds in Canada so afflicted, lower than in other countries; basing his assertion on the examination of lungs of animals slaughtered at abattoirs. Professor Andrew Smith reports cattle throughout Ontario generally healthy, the few cases of ordinary disease to which his attention was called being specified in detail in his annual report in the appendices herewith. Mr. Saunders, Director of the Experimental Farms, also supplies a report on investigation made by him under my instructions, at the several farms, respecting the existence of tuberculosis, and the results of the test made by him with veterinary assistance by tuberculin.

Department of Agriculture.

TUBERCULIN.

Owing to the representations that tuberculosis was on the increase in our Canadian herds of cattle, I gave instructions to procure direct from Germany, a supply of Dr. Koch's Tuberculin lymph. The first official trial of the lymph had been made at the Central Experimental Farm a few months previously, the results of which were published in a bulletin, entitled "Tuberculosis," and the test then made was found to be positive in establishing the diagnosis of the disease. Tuberculosis is prevalent throughout Europe, and is largely found in the United States. In all cases, owners of cattle affected by this disease should strictly isolate all that are suspected, and slaughter in their own interests all that are affected with it. As a matter of precaution an Order in Council has been passed, establishing a regulation requiring all officers in charge of Cattle Quarantines in Canada to test, by the use of tuberculin, all neat cattle entering the country so as to ascertain their freedom or otherwise from tuberculous disease in any of its stages. No animal which is found by the reaction test of the lymph to be affected with tuberculosis is to be allowed practice in the Dominion. The owner can have the alternative of returning such animal to the place whence it came, or having it slaughtered without compensation. The results of this system have so far been to prevent the entry of several animals imported for the improvement of the stock of the country.

PICTOU CATTLE DISEASE.

There is a slight decrease as compared with last year in the number of cattle ordered to be slaughtered as affected with this disease, such number being 105 this year, as against 125 in 1893. Veterinary Inspectors Townsend, of New Glasgow, and Chalmers, of Truro, N.S., have furnished me with a table showing the name of owners, number of cattle slaughtered, and amount of compensation allowed in each case, and this table will be found in the appendices herewith.

Professor Adami, of McGill University, furnishes a preliminary report of his investigations on the Pictou cattle disease, and the result of a number of experiments made by him throws considerable light on this disease, which has prevailed for so many years in the Pictou district. He points to the fact that it is essentially local and found only in certain districts of Nova Scotia. After describing his method of operations, he arrives at the conclusion that it is an endemic, or more correctly, an enzootic malady of infectious nature, due to some germ which passes from a diseased animal to its previously healthy neighbour. The idea which prevailed for a long time, that it was due to a large weed, the *Senecio Jacobææ*, is now proved to be fallacy, the reasons for which he gives. His observations enable him to state that the evidence he has gained of the bacillary nature of the disease fully justifies the regulations that have been in operation for some time, and he considers these regulations, while not perfectly adapted to the complete stamping out of the disease, are nevertheless excellently adapted towards keeping it in check. He is convinced that he has at last ascertained that the existing causes of the disease are of a pathogenic micro-organism, and he promises a further report *in extenso*, together with a series of suggestions upon the subject of prevention. His present report appears in the appendices herewith.

ACTINOMYCOSIS. (LUMP-JAW).

This disease is reported by Professor McEachran to exist both in domestic and ranch stock.

GANGRENOUS ERGOTISM.

This disease, the result of unwholesome food, affected during the spring part of the county of Grey, Ontario. It had before occurred, and ten years ago was largely prevalent in the South-western States. It is serious in character, but not contagious, and Professor Smith says easily prevented, by avoiding the use of ergotised hay, the fungus causing it apparently being found most frequently in what is known as "Blue" or "June grass." The outbreak was speedily controlled under veterinary treatment.

SHEEP SCAB.

This disease, referred to in my report last year as prevailing in the North-west Territories, is now thoroughly under control, and very few flocks or places remain "infected." Prof. McEachran reports that sheep have been moved from what were last year "infected districts" without the disease appearing in any one case. Mr. Evans, quarantine officer at Lethbridge, gives a full report of operations respecting scab, which forms one of the appendices herewith.

SWINE DISEASE.

No cases of hog cholera were reported this year, the few cases of ordinary disease that required attention being all reported to me as due to local causes, and not of a serious nature.

TRANSIT OF UNITED STATES CATTLE THROUGH CANADA.

The inspection of United States stock in transit through Canada has been satisfactorily carried out this year, and the reports of officers in charge of such inspection evidence compliance with the regulations. Mr. Allen, inspector of stock in transit, reports over two million head of animals passing through from west to east during 1894, requiring 36,719 cars for the service. The stock yards at Fort Erie and Lyn, where cattle are watered and rested are well inclosed and thoroughly isolated. No Canadian cattle are allowed to come in contact with these yards. The reports of the various officers inspecting cattle in transit from west to east will be found in the appendices.

CANADIAN HERD AND STUD BOOKS IN UNITED STATES.

Representations were made to my department by the Select Standing Committee on Agriculture and Colonization of the House of Commons during the last session, and also by a deputation from the several live stock associations of the Dominion, relative to the importation of pedigree stock into the United States, that in the Treasury Orders of that country of 1892 and 1893, there are specified lists of herd books recognized and published in the United Kingdom, which comprise New Zealand, the Turkish Empire, France, Belgium, Germany, Algeria, etc., while Can-

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adian herd and stud-books are omitted, the consequence of such omission being that no pure bred stock from Canada can be admitted into the United States without having been previously registered in records kept in that country. It was further represented to me that the standard of the Dominion Shorthorn Herd-book is even higher than that of the United States; that the Shorthorn Breeders Association of that country recognizes this book, and permits transfers from it for registration; a fact which may also be stated as regards the Dominion Clydesdale Stud-book. Such omission is found to be unjustly discriminating in its relation to Canada, and with a view of obtaining an amendment of the Orders of the United States Treasury Department, in such way as to place the Canadian Herd and Stud-books in the same position as those abovenamed, the British Minister at Washington was requested to make the proper representation to effect such result. The reply which has been received does not yet remove the objection. It is inserted, as an appendix herewith, together with my report to your Excellency.

MASSACHUSETTS CATTLE COMMISSIONERS CONVENTION.

My attention was called at the close of the summer to a convention of the Board of Cattle Commissioners of the State of Massachusetts, at Worcester in that state, on the 25th October, the object of such convention being the interchange of ideas on live stock inspection and cattle quarantine matters generally. An invitation having been addressed to Professor McEachran, I directed him to attend, and a report thereon forms one of the appendices herewith. At this meeting various methods of dealing with different forms of cattle disease which from time to time arise, and which are liable to affect so many varied interests, were discussed in full, and the commissioners informed Professor McEachran that he would be notified of the operations administered as a result of this meeting, and an interchange of ideas between the Canadian and United States veterinarians would be thus established.

ORDERS IN COUNCIL 1894.

A precis of Orders in Council passed since my last report, bearing on cattle quarantines, will be found in the Appendices, which, together with a similar precis of last year form a supplement to Appendix No. 32, of my report for 1892.

EXPERIMENTAL FARMS.

A continued and increasing interest has been manifested among farmers in all parts of the Dominion in the agricultural tests being made at these institutions, on account of their practical character and reliability. This is manifest in the large increase in the number of visitors at all the farms, in the unusual number of letters of inquiry for special information on particular subjects, and in a multiplied demand for the reports and bulletins issued.

During the year about 12,000 visitors have inspected the work in progress at the Central Experimental Farm. Many of these were brought by special excursions from different parts of Ontario and Quebec, organized under the auspices of farmers' institutes and agricultural clubs and circles. The railways offered reduced rates, and thus a large number of farmers had the opportunity of

examining, during the growing season, the many new and promising varieties of agricultural and horticultural products under test; also of witnessing the dairy operations and of inspecting the cattle, swine and poultry and other branches of farm work. Whenever opportunity offered, addresses were given by the officers of the farm to the assembled visitors, in explanation of the work in progress at the experimental farms. Farmers have also had the opportunity of inspecting many of the most interesting and useful products grown on the farms, at the more important exhibitions held in the cities of Toronto, Quebec and Ottawa, where very attractive and instructive exhibits were made.

The experiments established to test the value of fertilizers applied to special crops were continued, and the results will be found in the annual reports of the farms. Further experiments were also conducted to show the results of the early and late seeding of grain. Comparative tests of different varieties of wheat, oats, barley, pease and roots, all sown at the same time and under the same conditions were also conducted, for the purpose of determining the relative earliness and yield of the different sorts.

The work of originating new varieties of oats, barley, wheat and pease is still in progress, with promising results. Further tests were also carried on with Indian corn and other nutritive substances, for the making of improved forms of ensilage for the sustenance of cattle during the winter months. Experiments were conducted in the feeding of steers and of swine with the object of determining the most economical methods, as a guide to the farmer and stock raiser.

The distribution of samples of such sorts of grain and potatoes as have been found to be the most productive and of the best quality, were continued at all the experimental farms. This work is producing good practical results in many parts of the Dominion, where the better varieties thus introduced are rapidly taking the place of the less prolific sorts formerly grown. This gain to the farmer is much appreciated; and this important division of the work of the farm is highly esteemed by the farmers generally. Distribution of tree seeds and young forest trees of hardy and useful sorts, adapted for planting in the North-west plains, was also made, and is much appreciated by settlers.

The experiments conducted at Ottawa with many varieties of fruits have resulted in extending the list of those useful products which can be advantageously grown in the Dominion; and the information given since the farm work began has induced many to enter on this promising field of work. Special experiments were made during the past year, in some of the more important fruit producing localities, in spraying apple and pear trees with suitable fungicides, with the view of preventing or controlling the ravages of those fungous diseases so fatal to fruit crops. These experiments were attended with much success. The work of the entomologist and botanist, in the endeavour to determine the most profitable and useful varieties of grasses and clover to grow in different parts of the Dominion, has produced good results and stimulated inquiry on this important topic. Investigations were also carried on by the same officer in regard to noxious insects and noxious weeds. Further light has been thrown on the constituents of soils in different parts of Canada, and on the nutritive value of grasses and fodder crops, by the labours of the chemist. The quality and purity of many of the well waters used by farmers for their stock and household purposes were also tested and

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reported on. The experiments with poultry were continued and the results of the tests of the different breeds of fowls for the production of eggs and flesh, made public. Under my instructions experiments were begun during the past year in bee keeping, with the object of gaining such information as will prove of benefit to that important and growing industry.

Valuable work has been done at Nappan, N. S., in testing grains, roots, grasses and other farm crops best suited to the Maritime Provinces, and samples of many of the best sorts were distributed among farmers and displayed at the more important exhibitions. Further investigations were made at the experimental farms at Brandon, Man., and Indian Head, N. W. T., in determining the relative value and usefulness of many different sorts of agricultural crops suitable to the varying climates of those districts. Experiments were carried on at these farms to determine the most profitable and economical methods by which surplus wheat and other coarse grains can be converted into such concentrated animal products as beef, pork, &c. The favourable influence on crops brought about by the extensive planting of shelter belts of forest trees which has been carried on at these farms, is attracting general interest among farmers and inducing many to follow the good example thus set. The number of varieties of useful and ornamental trees and shrubs under test on all the experimental farms was increased during the past year, and the judicious grouping and planting of these about the buildings, which were done under the personal supervision of the director, has added much to the beauty and attractiveness of the surroundings.

The large orchards and fruit plantations which have been established on both valley and bench lands of the experimental farm at Agassiz, B. C., are attracting increasing interest from year to year, as the many varieties come into bearing. The young orchard of plum trees yielded abundantly during the past season, and many of the varieties of apples fruited well. Small fruits gave a bountiful return. More than 1,200 varieties of fruit are now under test at this farm. Experiments are being conducted with many different varieties of agricultural products, to test their value for the farmers of British Columbia.

Fuller particulars in regard to most of these subjects will be found in the annual report of the Experimental Farms, which may be had on application to the Director.

During the summer, the Director, under my instructions, had all cattle on each of the branch farms tested with tuberculin, and all animals showing any evidence of being affected with tuberculosis, destroyed. The herds on the Branch Experimental Farms have thus been freed from the presence of this insidious disease, and the buildings occupied by these animals have been thoroughly disinfected.

DAIRYING.

The dairying branch of agriculture yielded fair returns during the year. The price of cheese was slightly lower than in 1893. This is attributed mainly to the report that an unusually large quantity of cheese was made in Great Britain during the summer. The demand for Canadian cheese has been steady; and its reputation as a wholesome pure food of fine flavour and rich quality, has gained

ground. There is much less difference between the qualities and values of the cheese from the different provinces and the different sections in each, than used to prevail. The methods of manufacture are now nearly uniform throughout the whole Dominion; and while the districts which were formerly backward, are now nearly abreast of the foremost in quality of product and in market price obtainable, the dairymen in the districts which were formerly far ahead have also been the gainers by the general improvement. Frequent and commendatory comments have appeared in trade journals outside of Canada, on the fact that the manufacture of adulterated cheese is entirely prohibited within the Dominion.

There has been a moderate increase in the manufacture of butter in co-operative creameries. The prices of butter in Great Britain have been low; and the demand at the top market price there is for only the butter which has not lost the fragrance of the churn. Some better accommodation for the shipment of butter to Great Britain in summer will have to be provided, or cold storage must be more generally used for holding butter at a temperature about or under freezing point from the time when it is a few days old. It is most important that Canadian butter should win and hold as good a name for excellence as has been gained by Canadian cheese.

Meetings of farmers, conventions of dairymen's associations, conferences and similar gatherings for the discussion of agricultural and dairying topics were attended as usual in the different provinces by the Dairy Commissioner and his assistants.

The three agricultural conferences in the Maritime Provinces which Your Excellency honoured and aided by your presence and addresses, caused an increased interest to be taken by the agricultural population in the methods of dairying which are capable of yielding them the best returns. The reports of these unprecedentedly large and enthusiastic gatherings also directed attention throughout the country and many parts of Great Britain and of the United States to the rich agricultural and scenic resources of these beautiful sea-girt and sea-balmed provinces.

As the climate of Canada imposes a period of at least six months during which cattle must be fed in stables, more attention is being given every year by dairymen to the growth of Indian corn for fodder. Fed either as weather-dried stover or as ensilage, it is a juicy, wholesome, cheap feed for milking cows; and the possibility of growing heavy crops of it per acre nearly everywhere in Canada, puts the farmers here on an equal or better footing in regard to the cost of production, than their competitors in other countries where cows can be fed on pastures for a longer part of the year. In some places horse beans (*Faba vulgaris var equina*) have been grown with satisfactory results as a fodder crop. On the Central Experimental Farm as much as twelve tons per acre of green fodder was obtained of this valuable plant.

The comparatively new departure in dairying, in the fitting up of cheese factories for manufacturing butter from October until May, has made good progress. Two winter dairying stations were established in Ontario under the charge of the Dairy Commissioner in 1891. During the winter of 1893-94, seven of these butter-making stations were conducted by the Dairying Service of the department, and preparations have been made for conducting ten during the winter of 1894-95, including the dairy schools at St. Hyacinthe, Que., and Kingston, Ont. A large number of cheese factories were fitted up by the proprietors for the manufacture of butter during the winter. This new industry may now be considered as fairly well established in the province of Ontario and well introduced into the other

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provinces. The direct revenue from the sales of butter is not the only advantage which results to the farming interests from an extension of winter dairying. By means of it the number and quality of the cows which can be reared and kept upon farms are increased and improved; and by the use of the skim milk and buttermilk large numbers of swine can be reared and fattened.

A few paragraphs will indicate the principal work which is being carried on in the different provinces:

In the province of Ontario, winter butter-making stations are being conducted at Wellman's Corners and Chesterville; and arrangements have been made for carrying on the making of butter at Renfrew. A dairy school has been erected at Kingston, Ont., as a branch of the School of Mining and Agriculture there. The Dairy Commissioner has been instructed and authorized to take charge of that for the winter. Short courses of instruction have been arranged, especially for cheese-makers and butter-makers who have had the experience of working for one season at one of these branches. Each course will include practical instruction for two weeks; and any student may take both courses.

In the province of Quebec the Assistant Dairy Commissioner held meetings during the year. During the winter he delivered a series of lectures to each class of students at the Dairy School at St. Hyacinthe, Que. The school was erected by the Dairy Association of the province of Quebec in 1892, and has been conducted under the direction of the Dairy Commissioner. The Dairy Association for the province of Quebec contributes a sum of \$1,000 per annum towards its maintenance. During the winter of 1893-94, 268 students attended the school and took the courses of instruction in cheese-making, butter-making and the testing of milk. Applications to the full capacity of the school were received for the season of 1894-95.

A butter-making station will be conducted during the winter at Lennoxville, Que. Great progress has been made in the cheese-making of the province. Whereas a few years ago Quebec cheese were sold on the average for about one cent or more per pound under the prices obtainable at the same time for Ontario cheese, during the past season the prices obtained in Quebec were almost equal to the prices that were paid in Ontario at the same time. There has also been a marked improvement in the manner of boxing and branding the cheese.

In the province of New Brunswick a travelling dairy was sent out. Two skilful dairymen, who were also experts in butter-making, had immediate charge of it. Meetings were held and illustrations of butter-making were given in the following counties:—St. John, Charlotte, Sanbury, King's, Queen's, Albert, Westmoreland, Kent, Northumberland, Restigouche, Gloucester, York, Carleton, Victoria, and Madawaska. In all, 68 places were visited during the summer.

In the province of Nova Scotia an experimental dairy station was established on the Experimental Farm at Nappan, N.S., in 1892-93. The buildings were erected with capital furnished by persons in the neighbourhood, and the Department of Agriculture provided the apparatus for cheese-making and butter-making. Cheese-making is followed during the hot months of summer, and butter-making during the remainder of the year. A large number of new cheese factories and creameries have been in operation during the summer, and this business upon the co-operative plan is likely to become an extensive one.

In the province of Prince Edward Island one small cheese factory was in operation in 1891. A branch experimental dairy station was established at New Perth in 1892. From that small beginning, the manufacture of cheese and butter upon the co-operative plan has grown rapidly. During the summer 16 cheese factories and 2 creameries were under the management of the Dairy Commissioner. Twelve thousand and twenty-two boxes of cheese were made. The net proceeds from the sales of cheese, after deducting the charge for manufacturing, are to be paid to the farmers who supplied milk. At this writing the cheese is not all sold, and the bulk of it is destined for the market in Great Britain. The total value of the output of these cheese factories for the season is about \$80,000.

The introduction of butter-making in co-operative creameries has been fairly successful. The comparatively low price which has prevailed for butter has been a hindrance; but as the conditions on the island are adapted for making the very finest butter, with good keeping qualities, the business is likely to extend. A trial shipment of butter to Great Britain is to be made.

After the cheese-making season ended at the original branch dairy station at New Perth, the apparatus for butter-making was put in place, and butter-making was begun with every prospect of satisfactory returns.

The growth of Indian corn fodder was largely extended upon the island during the year, many leading farmers have erected silos, and the outlook for a large extension of the dairy business is good.

In the province of Manitoba and the North-west Territories, two travelling dairies were kept at work during the summer. These visited 63 places. The meetings were generally attended by from 30 to 100 farmers.

Butter-making was carried on at the dairy station at Moose Jaw. A joint stock company of farmers and others had provided a building and nearly all the equipment. The Dairy Commissioner was authorized to manufacture butter at the ordinary charge per pound. The net proceeds from sales of butter, after the manufacturing charge is deducted, are to be distributed among the patrons according to the quantity and quality of the milk or cream furnished by them. At the close of the manufacturing season in October, the patrons expressed themselves confident that they would furnish at least 50 per cent more milk next season. At the flush of the season in 1894, the quantity of butter made was about 300 pounds per day.

Throughout Manitoba and the North-west Territories more attention is being given every year to dairy farming, with the result that the farmers who follow that course have more reliable sources of revenue than formerly.

The valleys of British Columbia are admirably adapted for dairy farming, but it was not practicable to extend help to the dairy interests of that province by means of the Dairying Service, except through correspondence and the distribution of reports and bulletins. It is proposed to give the dairy interests of British Columbia similar help to that which has been extended to other provinces during next season.

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The magnitude and growth of the export trade of Canada in dairy products is shown by the following tables (year ending 30th June):—

DOMINION OF CANADA—Exports of Dairy Products—Home Production.

BUTTER.

Year.	Quantity.	Value.	To Great Britain.	To United States.	To France.	To Germany.	Other Foreign Countries.	B.N.A. Provinces.	British Indies.
	Lbs.	\$	\$	\$	\$	\$	\$	\$	\$
1868.....	10,649,733	1,698,042	534,707	1,015,702	.....	1,496	14,870	95,777	26,986
1880.....	18,535,362	3,058,069	2,756,064	111,158	.....	.....	24,710	163,290	2,847
1881.....	17,649,491	3,573,034	3,333,419	58,522	.....	.....	30,574	143,935	6,584
1882.....	15,161,839	2,936,150	2,195,127	529,169	.....	.....	32,052	169,270	10,538
1883.....	8,106,447	1,705,817	1,330,585	206,154	.....	.....	29,446	131,341	8,291
1884.....	8,075,537	1,612,481	1,395,652	46,618	.....	.....	16,455	151,224	2,532
1885.....	7,330,788	1,430,905	1,212,768	16,695	.....	15,172	21,473	161,862	2,835
1886.....	4,668,741	832,355	652,863	17,545	.....	.....	17,577	142,485	1,885
1887.....	5,485,509	979,126	757,261	17,207	.....	.....	23,789	180,238	631
1888.....	4,415,381	798,673	614,214	13,468	.....	.....	5,226	164,329	1,436
1889.....	1,780,765	331,958	174,027	7,879	.....	.....	22,921	124,349	2,782
1890.....	1,951,585	340,131	184,105	5,059	.....	.....	29,342	119,989	1,636
1891.....	3,768,101	602,175	440,060	10,054	.....	20,447	24,021	101,649	5,944
1892.....	5,736,696	1,056,058	877,455	6,038	.....	5,160	27,207	133,770	6,428
1893.....	7,036,013	1,296,814	1,118,614	7,539	.....	1,175	35,042	127,412	7,032
1894.....	5,534,621	1,095,588	936,422	6,048	1,125	.....	28,560	109,263	14,170

CHEESE.

1868.....	6,141,570	620,543	548,574	68,784	.....	.....	891	1,954	340
1880.....	40,368,678	3,893,366	3,772,769	114,507	.....	.....	170	5,710	210
1881.....	49,255,523	5,510,443	5,471,362	28,500	.....	.....	14	10,027	540
1882.....	50,807,049	5,500,868	5,571,076	18,436	.....	.....	242	8,196	2,318
1883.....	58,041,387	6,451,870	6,409,859	24,468	.....	.....	202	15,480	1,863
1884.....	69,755,423	7,251,989	7,207,425	24,866	.....	.....	188	19,248	262
1885.....	79,655,367	8,265,240	8,178,953	86,978	.....	.....	205	15,899	1,207
1886.....	78,112,927	6,754,626	6,729,134	15,478	80	90	156	9,139	549
1887.....	73,604,448	7,108,978	7,065,983	30,667	.....	.....	211	11,982	165
1888.....	84,173,267	8,928,242	8,834,997	83,153	5	.....	828	9,087	172
1889.....	88,534,887	8,915,684	8,871,205	31,473	.....	.....	1,582	11,208	216
1890.....	94,260,187	9,372,212	9,349,731	6,425	.....	370	2,154	12,777	755
1891.....	106,202,140	9,508,800	9,481,373	13,485	.....	.....	1,954	9,104	2,884
1892.....	118,270,052	11,652,412	11,593,690	39,558	2	.....	2,124	12,942	4,096
1893.....	133,946,365	13,407,470	13,360,237	23,578	.....	.....	2,689	18,669	2,297
1894.....	154,977,480	15,488,191	15,439,198	9,552	.....	173	3,036	21,948	14,284

The following table, from the Board of Trade returns of Great Britain for eight years (ended 31st December), shows the total quantities and value of butter and cheese imported into Great Britain:—

BUTTER.			CHEESE.		
Year.	Quantity.	Value.	Year.	Quantity.	Value.
	Cwts.	£ Stg.		Cwts.	£ Stg.
1886.....	1,543,566	8,141,438	1886.....	1,734,890	3,871,359
1887.....	1,513,134	8,010,274	1887.....	1,836,789	4,514,382
1888.....	1,671,433	8,913,045	1888.....	1,917,616	4,546,408
1889.....	1,927,842	10,244,636	1889.....	1,907,999	4,490,970
1890.....	2,027,717	10,593,848	1890.....	2,144,074	4,975,134
1891.....	2,135,607	11,591,181	1891.....	2,041,317	4,815,369
1892.....	2,183,009	11,965,190	1892.....	2,232,817	5,416,784
1893.....	2,327,474	12,753,593	1893.....	2,007,462	5,160,918

A bulletin was issued by my instructions during the summer, entitled "Butter and Cheese," containing a special report of what had been done in dairying, what markets there are for butter and cheese, and what measures had been taken by cheese and butter exporting countries for securing such markets, for which there was an extraordinary demand, copies being furnished to all applicants.

POULTRY AND EGGS.

Since the publication of my report last year, I received frequent inquiries respecting poultry, and to meet these I caused a bulletin to be issued on the poultry and eggtrade of the Dominion, for which a very large demand was at once manifested. The export of eggs is on the increase as manifested by the statistics in the bulletin in question. The most important market, of course, is the home one, but the trade returns of 1893 show that, besides supplying her own market, Canada exported in that year 6,805,432 dozen of eggs, of a value \$868,007; live poultry to the value of \$61,127, and poultry dressed or undressed to the value of \$20,840. The two principal customers of Canada, with which the others cannot compare, are Great Britain and the United States, the former taking the bulk of trade. In 1893 Canada exported to the United Kingdom 4,104,632 dozen eggs, valued at \$538,944, while to the United States she sent 4,021,637 dozen, valued at \$510,594. Up to 1890 the United States was the best customer of Canada, but the McKinley tariff of 1891 caused a great falling off, as the following table will show:—

	Eggs—Doz.	Value.
1882.....	11,728,518	\$1,793,167
1883.....	14,683,061	2,584,279
1884.....	14,698,338	2,356,313
1885.....	14,029,474	2,095,437
1886.....	14,465,764	1,893,672
1887.....	13,682,914	1,930,844
1888.....	15,255,558	2,262,815
1889.....	15,370,061	2,345,715
1890.....	14,917,912	2,065,086
1891.....	8,095,675	1,177,831
1892.....	4,021,637	510,594

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In 1888 our exports to Great Britain amounted to 2,379 dozen of eggs, valued at \$262; the following year it had dropped to 98 dozen, valued at \$18. The effect of the McKinley law is seen in the three years 1891, 1892 and 1893. Canada, finding that she was losing the United States market, turned her attention to England and exported as follows:—

	Eggs—Doz.	Value.	Poultry and Game.
1891.....	649,476	\$ 84,589	\$1,002
1892	3,987,655	592,218	3,349
1893	4,104,632	538,944	5,304

Showing that all that is needed is to press trade in that direction, for England has demand for all the eggs we can send. The supply has been drawn from France, Russia, Sweden, Denmark, Germany, Holland, Belgium, Portugal, Spain, Morocco, United States, and Canada. France headed the list last year with 35,121,740 dozen, Germany came next with 27,513,400 dozen, Belgium next with 19,857,680 dozen. The United States sent only 421,250 dozen, the total import amounting to 111,394,190 dozen, valued at \$18,480,276. France supplied nearly one-third of the whole quantity imported, and Germany came next with about a fourth of the value. Belgium followed with nearly a fifth. It will be seen from this that there is a great market for eggs in the United Kingdom at good prices, which should be an incentive to egg dealers in this country to bestir themselves to secure a greater share of the trade.

CANADIAN PRESSED HAY.

I mentioned the fact in my report for 1893 that Canadian hay was in considerable demand in England, and the price realized ranged from £4 to £5 sterling for the ton of 2,240 pounds. These prices continued well on into this summer, owing to a drought which seriously threatened the hay harvest of this year. Rain, however, fell in time to partly restore the crop and reduce the price; but I am informed that owing to the general deterioration which took place, prices may again revive, as a large part of the best quality has already been disposed of. The port of Bristol is apparently one of the large entrepôts of this trade; and Mr. Down of that city, who takes interest in matters pertaining to Canadian produce, informs me that "it is really astonishing to see here in Bristol farmers' wagons from the country, say for ten miles around, in after Canadian hay." He further reports that much inferior hay is there sold by dealers as "Canadian," when it is really the product of other countries, and he urges in the strongest manner that each bale shipped from this country be labelled "Canadian." He reported one case in May last where a quantity of very inferior stuff, Irish and South American, damaged by water, had been passed off as "Canadian." He further says that Canadian hay, shipped via New York to Bristol, is claimed as sent forward from the United States. The quality of hay from Canada is of prime importance, as an inferior article would be scarcely salable, and a few bad consignments would damage the reputation of Canadian hay. I am informed that chopped hay has also been shipped to Great Britain, but having been cut from two to five inches long and of a coarse quality, it was not suitable for the British market. Mr. Down looks forward to an extensive business in this article, if of a proper quality.

CANADIAN APPLES.

I consider this trade of great importance, and capable of being greatly enlarged. Mr. Down has given my department information respecting the apple trade, large cargoes of which fruit he reports arriving in Bristol from New York, and he is of opinion that as the Canadian fruit is of a superior quality, it could be sold on the British market to better advantage. He says:—"Goods to sell on this market must be packed tastefully, and I might almost say daintily, as the tendency is certainly towards parcels neat and pleasing to the eye when unpacked. This is the opinion of the largest fruit merchants in Bristol." Mr. Down states that he feels certain "Canadian fall fruit, such as the Fameuse or Snow Apple, or the St. Lawrence, would come well to the English markets if shipped in a similar manner to that adopted by the Continental and Australian senders, and a good return could be made on this venture."

In the early summer Australian and Italian apples arrived in England in large quantities, and secured very satisfactory prices, special attention having been given to packing. These fruits arrived in England perfectly sound, packed in small boxes of about 50 pounds each, the apples being wrapped in paper, something after the manner of oranges. This fruit realized about two pence per pound. Mr. Down recommends that Canadian fruit be packed in a similar manner and in boxes of similar weight, and he states that "on no account should barrels of loose fruit be sent, as the same are apt to arrive in a bruised condition." If Canadian fruit exporters wish to obtain a footing in the English markets, special attention must be given to packing.

The following method for packing apples for the British markets is suggested by one of the largest British fruit dealers, viz.:—"I would recommend that the boxes should hold just one bushel of apples, which will weigh from 40 to 45 pounds, according to the variety. To avoid bruising the fruit, the boxes should be packed in the orchard, and the fruit carefully handled for there is a bloom on it just as there is on grapes, though not so thick or conspicuous. Grade the apples according to size and let all the fruit in one box be of the same size. On no account should big and little apples be placed in the same box. Should there be any space left which cannot be filled by the regular row of apples fill it with paper. Never put a small apple to fill a hole, as this deteriorates the whole sample. Having packed the apples in regular rows, and filled the box level with the sides, be careful not to bruise every apple in the top layer by pressing down the lid too tightly. Rather leave a space to be filled with paper, to make the fruit firm in the box. If you bruise an apple in packing, it may rot before it gets here, and if so it will loosen all in the box. See that every layer is packed firmly before the next is added. Uniformity of size makes up for any deficiency. As the apples are sold by sight, the box that looks best will fetch the most money. The best paper to be used is strong white tissue. This gives a clean appearance to the box and does not injure the bloom. Wrap each apple in a separate piece of paper. Uniformity of size, regularity of rows, and noses all uppermost will produce a better looking box than any other known method of packing."

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FLAX CULTIVATION.

I desire to call attention to a branch of agriculture assuming proportions that bid fair to bring it prominently into notice, viz., the cultivation of flax, both from the value of the seed as well as of the fibre, and to call the attention of farmers to the advisability of growing this crop for seed in Manitoba, and for both seed and fibre in Ontario. The price realized by the flax-seed this year, the yield of which in Ontario is estimated at ten bushels per acre, the fibre being also valuable, whilst nearly double the amount of seed is raised in Manitoba, the fibre however in that province being without value, ranges at one dollar and upwards per bushel. The Mennonite settlers in Manitoba grow flax in large quantities. Manitoba seed finds a ready market in Ontario; the flax mills of Baden in Waterloo County paid out \$150,000 to the Pembina Mennonite settlers for this seed this year. These mills extract linseed oil from the seed, and the residue, known as flax-seed cake, finds a ready market in Europe. The mills above mentioned export 100 tons of this cake, per week, to the United Kingdom. I am informed that very little of this is consumed in Canada, only an occasional car-load being sent to Quebec for feeding purposes, which realizes \$25 per ton, or about 1½ cents per lb. Out of one bushel of flax-seed about 40 lbs. of cake are returned and the balance is pure oil and refuse. The Mennonites sow flax as a catch crop after they can no longer sow wheat in the month of May, or on land newly broken by the process of simple harrowing. They use not more than half a bushel of seed to the acre, experience having shown that by sowing it thin, the plant bushes out so as to obtain the largest possible amount of seed. The seed also, being very small in size, one half bushel to the acre would give to that area a larger number of grains to the acre than a bushel and a half or possibly two bushels of wheat. The soil for flax should not be too rich, where the object is to obtain fibre and it should never be grown on the application of fresh manure. It is asserted that the richness of the soil in Manitoba accounts for the fibre not possessing the strength of that grown in Ontario, and the same fact is reported in many of the Western United States, where hundreds of thousands of bushels of flax are grown for the seed alone, the fibre being found to be useless. The manager of the Baden mills expresses the opinion, based on large experience, that flax could not be considered an exhaustive crop as respects the soil, but the land requires to be kept perfectly clean. The latter is the test insisted on, rather than richness of the soil, the latter not being favourable to the growth of fibre, although conducive to large yields of seed. These are conditions which seem to make the crop specially valuable on the rich prairies of Manitoba and the North-west for the seed product. I learn that, owing to the drought of last summer in Manitoba, flax sown in May by the Mennonites did not come up until June, and after that its growth was very rapid, and the seed ripened well. This rapidity of growth should make it a valuable crop for the short seasons of the Canadian North-west, and if the seed grown there affords the properties of the Baltic seed, grown in similar conditions as respects land and climate, it may have a very considerable value for export to meet the growing demand for the products of this industry.

CANADIAN PORK AND BACON PRODUCTS.

I am informed that Canadian pork and bacon are meeting with ready sale in England, and gaining favour rapidly; and in view of this, our farmers will find it

necessary to pay special attention to the care of and fattening of their swine. The bacon should be shipped in a dry state. The salting must not be overdone, and the smoking should receive special attention, as much depends on this. Every side, and every ham should be branded "Canadian." If our curers can only put a good article on the British market with a certain mark and steadily persevere to get the brand in favour, there is every likelihood of a satisfactory business being worked up with remunerative results to Canadian farmers. But I urge the latter to attend carefully to quality and packing, as New Zealand is inaugurating this trade and I learn that as an initial experiment in preparing the bacon of that country for the British market, a small shipment arrived in England during the year, which was taken without any hesitation at about fifty shillings per cwt., and it is understood more consignments are to follow. Bacon curing establishments for this purpose are in operation in Christ Church, N.Z., equipped with all the modern appliances for carrying on business and farmers there find a ready market for their pork. The quality of the bacon received was from what are termed "dairy pigs." The success of Canadian shipments will entirely depend upon the quality of the article and the attention given to the curing of the same.

ECONOMIC ENTOMOLOGY.

The value of the science of entomology and investigations in connection therewith, in relation to horticulture, has been prominently brought to my notice during the past year. A very serious injury is inflicted on both agriculturists and horticulturists by insect depredations every year. The Dominion Entomologist's report on this subject, will be found in the Experimental Farm's appendices to my report. That the danger of these depredations is being carefully guarded against and the introduction of injurious insects into districts which they have not yet reached is engaging serious attention is shown by the following facts. My attention was called during the year to an action of the Provincial Government of British Columbia and to the advisability of co-operating with the latter for the purpose of taking steps to prevent the introduction into that province of insect pests injurious to fruit trees, the danger being pointed out in connection with their importation from the United States and the Eastern Provinces. Fully appreciating the great importance of this, I gave instructions for a careful inquiry into this subject, as a result of which I learned that the "woolly aphis" had already been firmly established in British Columbia for many years, and the "San Jose scale" insect is in injurious numbers both in Oregon and Washington States whose climate is identical with that of British Columbia. The principle of prohibiting the entry of any disease or pest, whether of animal or vegetable life is precisely the same as that of preventing the importation of contagious disease among animals or among individuals of the human species. The whole question is one of practicability as to the facility of dealing with disease or pest germs, and of methods by which the entry of such can be prevented. An Act was passed two years ago and amended during this year by the British Columbia legislature, entitled: "Horticultural Board Act, 1894," one clause of which empowers the Provincial Board of Agriculture to make regulations for inspection, and if necessary to notify the owners or persons in charge of such to inspect, disinfect or destroy within a specified time suspected material or transportable articles dangerous to orchards, fruits or fruit trees. The Secretary of the Board of Agriculture of that province informs me that this was announced through the pro-

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vincial press, and at every court house and post office in British Columbia, and special notice was also sent to every dealer there.

At the close of the season I received intimation that a car-load of apples, which had reached British Columbia from Ontario was found on inspection infected with larvæ of the "codling moth" and the owners were notified by the provincial authorities either to ship the car out of the country or to destroy its contents by fire. The validity of the "Board of Horticulture" Act of the province to this extent having been called into question, informal reference on this point was immediately made to the Department of Justice for opinion, which was, that the Act did not give power to an officer to destroy or to send back such a car load of apples. The views of the Dominion entomologist were then obtained. He reported that any apples affected with the larvæ of the "codling moth" might easily be detected by any intelligent person and sorted out of a barrel containing infected fruit. In his opinion this eliminating process might be performed with safety in respect to any barrels of apples then in British Columbia. I received subsequent intimation that such was done under the supervision of a member of the board. Instructions were then given as a preventive, to warn shippers not to send to British Columbia any apples that might possibly be affected by containing the larvæ of the "codling moth"; and to advise shippers only to purchase from those growers who had carried out the directions of the entomologist in relation to the proper spraying of trees with *arsenites* in the proper season, a list of the parties who had done so being easily obtainable from the several horticultural associations. It is thought that measures of this nature will perfectly protect British Columbia from the introduction from other provinces of insect pests, without at the same time hindering interprovincial trade, and I would add that I view with the greatest interest all efforts made by the Provincial Department of Agriculture to protect that province from the ravages of fruit pests.

That the operations of the Dominion Entomologist, acting under my instructions, are appreciated abroad, I may state that "Insect Life" published by the Department of Agriculture at Washington, refers to that gentleman as follows:— "He has paid a great deal of attention to a side of his work which is neglected by many of our own official entomologists, viz., personal intercourse with farmers, talks on injurious insects at Farmers' Institutes and has in this way built up a very large clientage amongst the most intelligent agriculturists of the Dominion. In economic entomology, Canada at the present day is in no way behind the United States and this is largely due to his individual efforts aided and encouraged by the warm support of the Director of the Experimental Farms."

I have caused the issue of a bulletin "Instructions for spraying" with results of experimental work for 1894 of that nature in the fruit districts of Ontario, and I hope the information it contains will be made use of by our fruit growers.

FODDER PLANT, LATHYRUS.

Early in the year I received a special inquiry respecting the fodder plant known in Europe as "Lathyrus Sylvestris," and I referred this inquiry to the Director of the Central Experimental Farm, whose report thereon will be found in the appendices herewith. This plant seems to have attracted attention in Europe,

due not only to its nutritious property but also to its luxuriant growth and alleged assimilation of atmospheric nitrogen. This plant is now and has been the subject of experiment at the central and other experimental farms.

NOXIOUS WEEDS.

My attention having been called to enormous injuries that would surely follow the introduction of the Russian Thistle into this country and specimens of it having been sent to me from Manitoba, I considered it advisable to cause a circular descriptive of it to be circulated amongst the farming population of Manitoba and the Northwest, so as to make them, as far as possible, aware of its appearance and nature. Mr. McFadden, the veterinary officer of this department at Emerson, reports that it has made its appearance in some parts of Manitoba and that he has consequently taken every precaution to prevent its introduction at Emerson, where it has not yet been found, by having all stock cars thoroughly cleaned out before crossing the boundary line. I understand that the Provincial Government of Manitoba recommended prompt and stringent measures to eradicate this weed immediately on its appearance being known. The United States Department of Agriculture states, in a bulletin issued therefrom, that the average loss on 940,000 acres devoted to wheat raising which may be attributed to the Russian Thistle alone, cannot be less than five bushels an acre. To this is to be added the loss on other crops which is considerable. I am in hopes that with strenuous exertions on the part of the agricultural community, this noxious weed may be, if not eradicated, at least kept within very limited bounds. A report by the Dominion Botanist on the present prevalence of this weed will be found in the appendices.

CANADIAN WOOD SPECIMENS.

An application having been made by Mr. W. C. Phipps, a lecturer for "The City and Guilds of London," for specimens of Canadian woods for the purpose of illustrating his lectures during the coming winter, I gave orders to supply the same from my department. I found, however, on inquiry, that none of the exhibitions at which Canada has been represented had subsequently left in my department any specimens of woods which could be available for the purpose, but on making application to the Geological Survey, the Director of that institution kindly furnished me with specimens of the more important woods, a list of which is given in Appendix No. 19. These have been forwarded to Mr. Phipps, to be used by him for the purposes mentioned.

MOSS LITTER.

I last year called attention to the increasing demand in Great Britain for "bog moss" or "moss litter," an article which grows abundantly in our swamps, and which might be advantageously made an article of trade. In this connection I am advised that it could be used to great advantage in packing eggs for shipment abroad, as it forms an excellent material for the prevention of breakage, and instead of being useless after serving that purpose, it would find a ready sale in quantities for stable bedding, a purpose to which it is now largely put in the United Kingdom. It could, as I have before pointed out, also be used in packing fruit and other perishable commodities, its moisture, absorbing properties strongly recommending it for this purpose.

Department of Agriculture.

SILKWORMS.

Early in the year I received a communication from Mr. Kopsch, of Shanghai, China, respecting the possibility of introducing into Canada the oak, and the oak chestnut, upon which the northern China silkworms feed, with a view to establishing a silk industry in Canada. The letter dwelt on the comparative climates of Northern China and that of Canada, which are somewhat similar, and so what flourishes in one, could be adopted in the other. This letter was subsequently followed by two packages of acorns of the *Quercus mongolica* and *Quercus castanæfolia*, which were transmitted to the Director of the Experimental Farm, with instructions to test these seeds, with a view to ascertain the probability of cultivating the silk worm in connection therewith.

The *Agricultural Gazette* of New South Wales states that colony is interesting itself in the "signs of progress in the infant industry of silk," there, and further expresses the opinion "that silk will come to be a staple grown there as important as wool." It dwells on the various species of worm, and suggests the kind best adapted for that climate, and adds "there is an ever enlarging desire on the part of settlers to add silk-growing to their other occupations on the soil."

Experiments have been tried in the United States in this direction, but the question found to arise in connection therewith is the amount and cost of labour attending the earlier stages of this industry, in a country where wages are comparatively high, as compared with similar expenditure in the dense population of the Chinese Empire.

A pamphlet published by the Imperial Maritime Customs in China on the wild silkworm of that country was also forwarded to me by Mr. Kopsch, and forms one of the appendices herewith.

GINSENG.

I received a letter from China last spring, suggesting amongst other matters, that attention be paid to Ginseng, and I would consequently call attention to this plant in which formerly there was a considerable trade from Canada. The writer says:—"It seems that the Department of Agriculture is desirous to encourage enterprises calculated to enrich or add to the resources of the Dominion. I venture to mention 'ginseng.' The plant sent from the United States, but probably indigenous to Canada, is in great demand in China, and if the Korean variety, almost worth its weight in silver, could be cultivated, it would find a large market in China and might form an export of great value."

Professor Macoun, of the Geological Survey, informs me that during 1891-92, and 1893, and probably during the past season, the forests of the district west of Belleville were ransacked by ginseng hunters, and large quantities of the roots of that plant were dug up and carried away. He states that the principal trade in Canada in this connection sprang up in 1890. I find on inquiry that in that year the quantity sent out of Canada represented some \$100,000, of which \$20,000 worth was shipped from points along the Kingston and Pembroke Railway, and the price realized for dry roots was from \$3 to \$3.50 per pound. For many years the shipment of this root from the United States assumed large proportions, Wisconsin and Minnesota being the principal producers. I learn that, in consequence of the war in

China, where the article is largely used, the price there has materially advanced, and consequently this product, indigenous to Canadian soil, may become especially valuable.

HONEY.

During the spring I received, through the Secretary of State, a communication from Mr. Pettit, of Belmont, representing a Bee-keeper's Association, urging the necessity of legislative protection to prevent honey adulteration and the sale of substitutes for honey. The communication in question represented that a number of cases of honey adulteration came to light in 1893, and that a considerable quantity of the fraudulent article—sugar honey—had been put upon the markets. He further states that adulteration will impair confidence in all the food products of the country, especially that of honey, and that this industry which promises to become of importance in the export trade would be destroyed without proper legislation on its behalf. Legislation in this connection, I found, after due consideration, will have to be administered through the Department of Inland Revenue, and the whole subject was therefore referred by me to the Comptroller of that department.

APIARY.

In the appendices to my report will be found a letter from Mr. R. F. Holterman, editor of the Canadian "Beekeeping Journal," urging the establishment of an apiary at the Central Experimental Farm, and stating further, the principal reasons for such suggestion. The matter had already engaged my attention, as I consider beekeeping a valuable adjunct to the agricultural interests, as well as to that of many who may only be called horticulturists. On a consideration of the facts, I authorized the establishment, at the Central Experimental Farm, of an apiary, in order that reliable information for publication might be obtained by actual observation. This was placed under the charge of the Entomologist, and the result of the first year's experience will be found detailed in his annual report. The practical management and care of the bees was entrusted to the farm foreman. The apiary now consists of twenty colonies of bees, which are conveniently located during the summer, adjacent to the poultry buildings. This branch of the work attracted much attention last summer, and the bees were an object of great interest to visiting farmers.

BRITISH PHARMACOPEIA.

An Imperial circular despatch was referred to me during the summer, covering correspondence by the president of the General Council of Medical Education and Registration of the United Kingdom, inviting the co-operation of the colonial medical authorities in the preparation of a future edition of the "British Pharmacopœia." After carefully considering this, I ascertained that the medical associations in Canada having authority to act in this matter, are the medical councils of the various provinces, each having similar power and authority, and constituted on similar lines to the General Council of Medical Education and Registration of Great Britain. As each province controls its educational and medical subjects, I recommended that a copy of the correspondence in question should be sent to the regis-

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trar of the medical council of each province for the purpose of formulating any suggestions, additions or alterations deemed advisable in the Pharmacopœia, with the request that the result of any conclusions arrived at should be forwarded to me for transmission to the Imperial authorities. This was done, but up to this date the registrars of the medical councils of the provinces have failed to make any reply.

AUSTRALIAN ARROWROOT.

In my report last year, reference was made to an experimental shipment from the Queensland Government, Australia, of fruit from that country, the result of which was given by me; and I also stated that in addition to the fruit, five boxes of arrowroot had been received, the contents of which were distributed among several leading grocery firms for commercial valuation and sale. It was subsequently suggested to me that a large trade in arrowroot lies in the hands of druggists and biscuit manufacturers, and consequently I gave instruction that samples should be forwarded to a number of firms engaged in those respective businesses. The replies received by me are given in Appendix No. 6 (Miscellaneous). The reports received show that the medicinal and dietary value of Australian arrowroot may be considered equal to the Bermuda variety, and that the trade value ought therefore to be about the same, but, whether from the limited quantity of Bermuda arrowroot imported and sold in Canada, the trade in the Australian article would ever be of great volume, is doubtful. As stated last year in the case of Australian fruit, freight charges from so long a distance materially stand in the way of a profitable trade.

EXHIBITIONS.

ANTWERP EXHIBITION.

The arrangement mentioned in my last year's report for Canadian representation at the Antwerp Exhibition this year was subsequently found impracticable, and after mature deliberation in Council, it was finally decided in April last that the Dominion could not be represented thereat by the Government.

WORLD'S COLUMBIAN EXPOSITION.

It was anticipated that the work in connection with the World's Columbian Exposition would have been completed early in the spring; but, through causes beyond the control of my department, the completion of the work has been delayed.

In the matter of diplomas, the greatest care had to be exercised, as not only were the names and addresses in many instances wrongly given, but in some cases the wording of the awards was found to be detrimental to the interests of exhibitors doing, or expecting to do, any export trade, and awards which it was known had been recommended by the jurors, were omitted altogether from the lists sent out by the committee.

The correction of such errors entailed a great deal of correspondence. The first list of awards was received early in April, but it was the middle of September before the last came to hand. The statement was made by the Awards Committee at the close of the exposition, that the medals and diplomas would be ready for delivery to exhibitors by the middle of the summer; but information was

recently received by my department that the delay in securing the requisite parchment from Japan, owing to the war troubles of that country, would postpone the delivery.

The report of the Executive Commissioner for Canada has been distributed.

TASMANIAN INTERNATIONAL EXHIBITION.

The subject of representation by Canada at the International Exhibition to be held in Hobart, Tasmania, in November, 1894, was brought to my attention last winter. After mature deliberation it was decided in Council that the conditions for a Canadian representation at the period named were not favourable, but a notification respecting such exhibition was ordered to be officially published in the *Canada Gazette* so as to enable such individual exhibitors in Canada as might desire to participate, an opportunity to do so. The result of this was only five applications for copies of the regulations in connection with this exhibition, which were duly supplied.

ATLANTA EXPOSITION.

An invitation to Canada to be represented at the Cotton States and International Exposition to be held in Atlanta, Georgia, during next autumn, was conveyed to me by the Consul General of the United States in this country. This invitation was submitted to Council with the result that although the Government would not undertake to be represented there, it was decided that notification respecting the same should be officially published in the *Canada Gazette* and be communicated to the press generally so as to enable such individual exhibitors in Canada as might desire to be represented an opportunity to do so.

NORTH-WEST TERRITORY EXHIBITION.

It was decided by Council that the vote of the last session of Parliament of \$25,000 for "Contribution towards an Exhibition in the North-west Territories" should be allocated in the following manner:—

Fifteen thousand dollars to be applied in furnishing prizes for competition and ten thousand for ordinary expenses, such exhibition to be held at Regina; and the Lieutenant Governor of the North-west Territories has been so notified. I am of opinion that this exhibition will have beneficial results in making known still more widely the resources and capabilities of that portion of the Dominion, especially as relates to the products of agriculture, stock, and dairying, arts, manufactures, forests, mining and fisheries.

AGRICULTURAL SOCIETIES.

My action this year in the distribution of the grant of Parliament, of \$7,000, to agricultural societies in the North-west Territories, does not differ from that of previous years.

The conditions of distribution are that only societies which number over fifty subscribers, and which must certify that all subscriptions are paid up, are allowed to participate in the allotment. The amount of allocation for each society depends

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upon the number furnishing reports, and neglect of societies in furnishing their papers in due time, retards the issue of cheques for the distribution of this grant. I would again urge upon all societies in the North-west Territories to exercise promptness in forwarding their returns, as delay on the part of one or two is the cause of payment for the whole number being delayed.

PUBLIC ARCHIVES.

The work of the Archives Branch goes on regularly and systematically. As the copying of the papers and documents in London, relating to the two Canadas, has approached completion, down to 1842, the period immediately preceding the union of the two provinces, it was considered necessary to have an investigation made of the documents relating to the other provinces; the result of this examination will be found as an appendix to my report, to which reference may be made.

The copies as made in London are regularly transmitted to me and placed in the Archives Division, where they are accessible to investigators, acknowledgments from whom are constantly received, showing that the object of the institution of this division of my department has been accomplished and appreciated.

In addition to the papers from London, an instalment of the documents existing in Paris has recently been received, and these volumes are now ready for consultation, of which advantage has already been taken by parties interested in historical and literary matters.

III.—PATENTS.

By reference to the following comparative statement it will be seen what the different transactions of the Patent Office have been in each year since 1884.

COMPARATIVE STATEMENT of the business of the Patent Office, from the year 1884 to 31st October, 1894.

Years.	Applications for Patents.	PATENTS AND CERTIFICATES GRANTED.			Caveats.	Assignments of Patents.	Fees Received, including Designs and Trade Marks.
		Patents.	Certificates.	Totals.			
							\$ cts.
1884.....	2,681	2,456	167	2,623	238	1,772	69,530 69
1885.....	2,518	2,233	214	2,447	222	1,075	69,075 21
1886.....	2,776	2,610	250	2,860	187	1,322	73,949 29
1887.....	2,874	2,596	254	2,850	219	1,335	76,132 74
1888.....	2,747	2,257	282	2,539	240	1,159	74,508 37
1889.....	3,279	2,725	356	3,081	221	1,437	87,158 60
1890.....	3,560	2,428	369	2,797	248	1,307	94,027 16
1891.....	3,233	2,343	393	2,736	215	1,231	86,960 59
1892.....	3,176	3,417	415	3,832	242	1,500	86,713 05
*1893.....	2,614	3,153	292	3,445	229	1,345	71,863 52
1894.....	3,291	2,756	462	3,218	301	1,445	90,146 19

* For ten months only.

DETAILED STATEMENT, Patent Office Fees.

Year.	Patents.	Assignments.	Caveats.	Copies.	Subscription to Patent Record.	Notices to Apply for Patent.	Sundries.	Totals.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1884.....	53,524 33	2,471 07	1,198 60	898 25	.....	.....	165 22	63,257 47
1885.....	57,777 31	2,225 63	1,226 65	895 89	.....	.....	50 75	62,176 23
1886.....	62,263 45	2,692 50	1,054 11	1,047 90	.....	.....	94 91	67,176 23
1887.....	62,924 44	2,715 88	1,169 50	1,044 31	.....	.....	86 08	67,940 21
1888.....	60,436 78	2,562 22	1,257 40	971 98	.....	.....	18 13	65,246 51
1889.....	72,411 30	3,027 90	1,205 47	1,267 60	.....	.....	134 45	78,046 72
1890.....	78,192 61	3,202 00	1,320 15	931 83	.....	.....	504 19	84,150 78
1891.....	72,664 26	2,411 95	1,124 60	782 29	.....	.....	340 53	77,723 63
1892.....	71,840 84	2,794 66	1,270 13	793 32	236 52	89 96	195 33	77,216 76
*1893.....	58,441 91	2,633 71	1,244 70	796 15	285 13	337 81	110 73	63,850 19
1894.....	73,061 77	3,142 74	1,793 40	764 07	347 21	1,449 80	123 57	80,682 56

The Patent Office fees received during the year ending the 31st of October show a surplus of \$40,766.31 over the working expenses of the office, as per sub-joined table:—

Receipts.		Expenditure.	
	\$ cts.		\$ cts.
Cash received.....	80,682 56	Salaries.....	31,936 96
Cash refunded.....	1,905 54	Patent Record.....	6,073 75
		Receipts over expenditures.....	38,010 71
Net cash.....	78,777 02		40,766 31
			78,777 02

The patentees resided in the following countries:—

Countries.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.
Canada.....	607	610	687	639	565	609	620	606	671	685	661
England.....	94	85	140	153	152	203	116	122	298	206	177
United States.....	1,714	1,408	1,730	1,740	1,425	1,788	1,623	1,519	2,227	2,061	1,731
France.....	9	7	8	11	21	18	10	10	26	24	24
Germany.....	11	11	20	29	33	51	23	36	106	88	108
Other countries.....	21	22	25	24	61	56	36	50	89	89	55
Totals.....	2,456	2,233	2,610	2,596	2,257	2,725	2,428	2,343	3,417	*3,153	2,756

* For 10 months only.

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The Canadian patentees were distributed among the province of the Dominion as follows:—

Provinces.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.
Ontario.....	389	397	462	442	354	383	425	394	464	437	404
Quebec.....	151	150	152	141	128	129	125	140	131	151	162
New Brunswick.....	26	16	23	18	19	22	20	16	19	23	13
Nova Scotia.....	24	33	21	26	35	30	17	22	16	29	15
Prince Edward Island.....	2	7	3	4	2	2	3	1	1	3	2
Manitoba and North-west Territories.....	12	13	20	16	18	32	14	28	22	26	38
British Columbia.....	5	4	6	2	9	11	16	5	18	16	27
Total.....	607	610	687	639	565	609	620	606	671	*685	661

*For ten months only.

Statement of the number of patents issued under the Act of the Session of 1892, 55-56 Vic., Chap. 24, on which the fees are paid for periods of six, twelve or eighteen years, at the option of the patentees, and of patents on which certificates of payments of fees were attached after the issue of patents originally granted for periods of five and ten years.

Years.	Periods for which the Fees were paid on first issue.			Patents on which Certificates were attached after Issue.	
	6 Years.	12 Years.	18 Years.	6 Years.	12 Years.
1892 (Six months ending 31st December)	2,141	3	35	.....	3
1893 (Ten months ending 31st October)	3,098	9	46	.....	3
1894 (Twelve months ending 31st Oct.)	2,701	9	46	.....	4
				5 Years.	10 Years.
1892 (Six months ending 30th June)				387	25
1893 (Ten months ending 31st October)				279	10
1884 (Twelve months ending 31st October)				433	25

By the Act of the session of 1892, 55-56 Vict., Chap. 24, the life of patents issued thereafter is extended from fifteen to eighteen years, with the privilege to the inventor or applicant, by payment of a partial or proportionate fee, to reduce this period to six or twelve years respectively. It is expected by thus extending the life of patents that the number of applications will largely increase. The above Act also provides that models shall be dispensed with, unless specially required, and it is thought, by thus relieving inventors or applicants from the necessity of producing models, some of a costly character, that it will operate as an additional incentive to increase the number of applications for patents.

The number of notices filed under authority of section 8 was 751, yielding a revenue of \$1,449.80.

Five patents were re-issued during the year ending the 31st of October.

In many instances patentees having represented and shown to the satisfaction of the office, that they were unable to comply with the requirements of section 37 of "The Patent Act," through means beyond their control, an extension of time within which to commence the manufacture of their inventions was granted. An extension of time to import was also accorded to others, where satisfactory reasons were shown to justify the granting of this privilege; 1,192 extensions to manufacture, and 956 extensions to import, were thus granted.

The attention of applicants for patents should be directed to the necessity for the greatest care in the preparation of their applications, a work which is generally advantageously performed by patent solicitors, not only in Canada, but in other countries where patent laws are in active operation.

The number of applications for patents, examined and reported on by the examiners during the past year was 3,617.

The utmost care and diligence have been observed by the Patent Office in thoroughly scrutinizing all applications for patents, and in cases where the alleged invention possessed none of the requisites of a patent, under the provisions of "The Patent Act," the application was not entertained.

The number of applications for patents, refused for want of novelty, was sixty.

Although only 9,426 visitors registered their names in the visitors' book, fully three times that number visited the model museum.

A change has been made in the manner of publishing the *Patent Record*, which is now printed at the Government Printing Bureau, whereby the work is both better and more economically done—the type, paper and illustrations being much superior to what they formerly were. A further advantage is that the illustrations instead of being put at the end of the *Record* as formerly, now immediately precede the claims in each and every patent. Subscriptions to this publication are now received by the office, instead of allowing the profit arising therefrom to go to the contractor, as formerly, and a revenue is also derived from the sale of back numbers.

The Joint Committee of the Library of Parliament in the session of 1892 permitted the removal to the Patent Office, of all works issued by the British and French Patent Offices relating to patents issued therefrom respectively.

These books, together with those already in the Patent Office, comprise about 3,000 volumes, for which a well lighted and convenient room adjoining the patent museum has been provided, to which inventors and the public generally have free access. This special library will not only be an advantage to the public generally, but will be of material assistance to the examiners and other officers of the Patent Office in the discharge of their respective duties.

Department of Agriculture.

IV.—COPYRIGHTS, TRADE MARKS, INDUSTRIAL DESIGNS AND TIMBER MARKS.

The following table shows a comparative statement of the business of this division from 1868 to 31st October, 1894, inclusive:—

Years.	Letters Received.	Letters Sent.	Copyrights Registered.	Certificates of Copyrights.	Trade Marks Registered.	Certificates of Trade Marks.	Industrial Designs Registered.	Certificates of Industrial Designs.	Timber Marks Registered.	Certificates of Timber Marks.	Assignments Registered.	Fees Received.
												\$ cts.
1868.....	110	128	34	34	32	32	6	6				183 00
1869.....	198	211	62	62	50	50	12	12				418 00
1870.....	473	463	66	66	72	72	23	23	190	190		877 00
1871.....	562	562	115	115	106	106	22	22	105	105		1,092 00
1872.....	523	523	87	83	103	103	17	17	64	64	11	927 00
1873.....	418	549	122	38	95	95	30	30	69	69	20	940 50
1874.....	1,027	1,027	131	55	163	163	30	30	41	41	19	1,339 50
1875.....	943	986	131	50	149	149	31	31	21	21	15	1,175 00
1876.....	1,175	1,240	178	57	238	238	47	47	17	17	33	1,758 25
1877.....	1,190	1,236	138	37	227	227	50	50	18	18	31	1,732 70
1878.....	1,210	1,285	193	61	223	223	40	40	10	10	14	1,671 25
1879.....	1,104	1,127	184	69	154	154	41	41	13	13	24	2,434 82
1880.....	1,145	1,292	185	98	113	113	40	40	19	19	28	3,806 15
1881.....	1,172	1,307	225	94	156	156	38	38	30	30	22	4,772 70
1882.....	1,192	1,264	224	87	160	160	45	45	21	21	64	4,956 40
1883.....	1,178	1,286	253	100	160	160	66	66	24	24	33	5,397 72
1884.....	1,186	1,186	281	120	196	196	68	68	14	14	49	6,273 22
1885.....	1,542	1,542	555	125	209	209	48	48	16	16	54	6,898 98
1886.....	1,544	1,544	574	101	203	203	54	54	17	17	58	6,795 42
1887.....	1,543	1,543	554	167	245	245	105	105	16	16	56	8,192 53
1888.....	1,655	1,889	566	167	288	288	71	71	29	29	71	9,262 86
1889.....	1,721	1,987	616	178	280	280	88	88	26	26	49	9,111 88
1890.....	1,766	2,169	688	222	293	293	68	68	21	21	104	9,876 38
1891.....	1,651	2,385	541	174	307	307	129	129	11	11	51	9,236 96
1892.....	1,773	2,300	536	159	294	294	30	30	27	27	66	9,496 29
1893.....	1,432	2,070	475	126	257	257	41	41	19	19	55	8,013 33
1894.....	1,882	2,720	546	216	311	311	39	39	20	20	77	9,463 63

The total number of registrations of copyrights, trade marks, industrial designs and timber marks was 916 during the year ending 31st October, 1894. This consisted of 546 registrations of copyrights, 311 registrations of trade marks, 39 of industrial designs, and 20 of timber marks. There were also issued 216 certificates of copyrights, 27 registrations of interim copyrights, and 15 certificates; 9 registrations of temporary copyrights, and 1 certificate. The total number of assignments of these different rights recorded was 77.

The correspondence of this branch of the department amounted to 1,882 letters received and 2,720 sent.

The fees during the year amounted to \$9,463.63.

COPYRIGHT AND TRADE MARKS BRANCH.

Detailed Statement of all Moneys received from 31st October, 1893, to 31st October, 1894.

Month.	Trade Marks.	Copy-rights.	Designs.	Timber Marks.	Assignments.	Copies.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
November	980 00	67 75	9 50	8 00	5 50	2 50	1,073 25
December	684 25	54 00	8 50	4 00	5 00	4 50	760 25
January	895 00	61 38	.....	4 00	8 00	4 25	972 63
February	390 00	55 00	20 00	2 00	7 00	3 60	477 60
March	840 00	45 50	35 00	12 00	12 50	6 50	951 50
April	755 00	52 50	45 00	4 00	4 00	6 00	866 50
May	721 20	77 00	35 00	2 00	7 00	1 50	843 70
June	604 55	63 50	20 00	2 00	22 50	19 50	732 05
July	590 65	75 50	15 00	2 00	7 00	2 40	692 55
August	720 60	27 50	19 00	2 00	31 00	5 00	805 10
September	495 00	53 50	15 00	2 00	10 00	3 50	579 00
October	630 00	28 00	15 00	4 00	22 00	10 50	709 50
Grand Total	8,306 25	661 13	237 00	48 00	141 50	69 75	9,463 63

V.—QUARANTINE.

During the past year the Canadian Quarantine system was threatened at all points with invasion, viz., by cholera and small-pox from Europe on the Atlantic seaboard; by bubonic plague from China on the Pacific; and by small-pox from the United States along the land frontier.

The precautions taken, and the watchfulness exercised by all officers engaged in Quarantine service, acting under my instruction, prevented, I am happy to say, the entrance through the ports so guarded of any disease of a contagious or infectious nature.

The refitting of the several maritime quarantine stations of the Dominion on the Atlantic and Pacific coasts and erection of new buildings with improved apparatus and plant for disinfecting, led to the appointment of Dr. Montizambert as professional adviser to the department in Quarantine matters, and General Superintendent of Canadian Quarantines, with headquarters, as formerly, at Grosse Isle during the season of navigation, subject to call on my order for service if required at any port of the Dominion, or elsewhere, at all times of the year. The special precautions taken in 1893, under my instructions, to prevent, in every possible way, the introduction of cholera into the Dominion, were this year again carried out, with the result, as above stated, that disease has been warded off. As an evidence of the necessity for these precautions, I would call attention to the report of the Imperial Local Government Board for 1892, recently published, which gives some valuable information regarding cholera, which I think it well to embody in my report, both as showing the course taken by that disease when invading Europe, and as a ready means of reference in future years to the action taken. This report states there were three centres of extension;—Paris, Asiatic Russia and Arabia. From the first of these it extended down the valley of the Seine into Belgium; from the second it travelled through Afghanistan, Persia,

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and Russia Turkestan, following the new line of railway from Samarcand to Ada on the eastern shore of the Caspian Sea, spreading thence up the Volga, it was introduced into European Russia. Its progress in Russia gives remarkable records of the manner in which waterways, serving as lines of human traffic become also carriers of cholera, and shows the power of mischief of cholera-infected water, when used for human consumption. The distribution of cholera in the suburbs of Paris is traced to communes having distinct relations to the extent to which the river Seine, from which the water supply is drawn, is polluted by the sewage of Paris. Of the forty-eight communes using this water, twenty-eight were invaded with cholera, and the death rate of those drawing their supply at a point below the main outfall sewer was nearly fourteen times as great as of those who were supplied from the same river at a point above Paris. In Germany, both the Imperial and Prussian Governments took early precautions for the prevention of cholera, these efforts being specially directed to the large immigrant traffic passing between infected Russian provinces and ports on the northeast of Germany, notably Hamburg. From the latter place, however, four cases reached Scotland, one of which was fatal; also, later on thirty-five cases were reported in England, the majority coming from Hamburg, but owing to the precautions taken, in no instance did the disease extend to any person, other than those arriving from abroad.

I quote from the report as follows:—

“Throughout the spring and summer careful note had been kept in the medical department of the movements of Asiatic cholera, first in the direction of and across the eastern frontier of Europe into Russia, and then from one Russian province to another in the direction of the Baltic, and of the German and Hungarian frontiers. And when the disease was evidently about to invade those provinces of Russia which are within the pale of settlement for the Jews, and from which emigration of Russian Jews across Germany, and thence to this country, was at the time in rapid and continuous progress, it became necessary at once to warn the authorities of those English ports at which these immigrants and trans-migrants were landing. On the 25th of July a rapid medical survey of our ports was commenced, and it was carried on throughout the whole of August, September, and October. The more important of our eastern ports were first visited; the next ports to come within the survey being some on our southern coast. But in the meantime cholera had reached the port of Hamburg, the disease having broken out there somewhat after the middle of August. The first intimation of the infection of this port reached the board on August 23rd, and the circumstance was at once communicated by telegraph to those of our ports which were known to have traffic with the Hanseatic city. The port survey, already in progress, was maintained and extended; a large number of ports were visited at various points along our coast line, the port authorities being urged, where necessary, to increase their means for the inspection of vessels coming from foreign ports, and to make such arrangements as would enable them to deal with any case of cholera or of choleraic diarrhoea that might be found on board ship. The survey also took account of a considerable number of riparian sanitary districts other than port districts, the shipping trade of which rendered the adoption of special precautionary measures necessary. In all, more than 100 districts, including all port sanitary districts, were thus visited for the purposes of inspection and conference with the authorities concerned.”

The report also gives the then existing arrangements for dealing with imported cholera; the advice given by the inspector on behalf of the board; and, as far as practicable, the action taken at the time on that advice. In this way English port and riparian authorities were placed on the alert; and although 35 cases of cholera reached England between August 25th and October 18th, the disease, in no case

extended to any person beyond those who had arrived from abroad. Of these 35 cases, 11 terminated fatally.

This very important experience in dealing with so many actual inroads of Asiatic cholera in England, an experience which is the same as that of two previous years, based on well defined knowledge of the mode in which that fearfully destructive disease spreads, is not found to be a reason why exertions should be relaxed to prevent its entry into the Dominion, but it does furnish an incitement to the Provincial Boards of Health to be well on the alert, in the event of an inroad of a case, from any unforeseen reason arising, to see to isolation of the patient and destruction by cremation of all emanations together with sterilization by steam of all infected articles of dress.

Towards the close of last year and during the winter of 1893-94, cholera lingered in Southern Russia and Turkey. I am informed that with a few exceptions in France there were no cases in Western Europe, but with the return of warm weather this year the disease again began to spread westward from Russia, whence it crossed over into Prussia, Austria, Hungary and, later, into Holland and Belgium. In Dr. Montizambert's report some interesting details will be found of an investigation made by the Spanish Government respecting the epidemic in Lisbon. The highly satisfactory work that was done here in the way of disinfecting immigrants' luggage and the holds and steerage of passenger vessels arriving from any of the infected countries of Europe, I am led to believe, prevented the introduction of the germs of cholera into this country. Dr. Montizambert says: "There is this negative evidence of successful work, that no cholera has declared itself in Canada," and he further remarks: "It is impossible to say to what extent the infection might have been disseminated through this country had not the immigrants' luggage, from cholera infected places been thus sterilized before being allowed to enter Canada." This sterilization of luggage immediately upon the landing of immigrants, was carried out at the deep water termini of the railroads, involving no delay to healthy vessels. The labels attached to immigrants' luggage, bearing evidence of quarantine inspection under Dr. Montizambert's supervision, are now accepted readily by health inspectors at all points on the boundary line. In accordance with the conclusions and rules of the Dresden International Conference, all vessels on which there had been no death, nor cholera symptoms, were at once, after inspection, given free *pratique*, even though coming from an infected port, the luggage, however as above stated, having been disinfected. I am informed that the opinion is gaining ground that Asiatic cholera is becoming endemic in Europe, allusion to which is made in Dr. Montizambert's report, in connection with which he emphasises the fact that the danger to this country then becomes permanent and continuous, necessitating continued vigilance at our sea-ports as a guarantee of safety.

The American Public Health Association, numbering on its list the majority of the medical health officers, and others specially engaged in quarantine work in the United States, Canada and Mexico, held its annual convention at Montreal in September last, and at the close of its session, over 300 members of this association visited Grosse Isle for the purpose of inspecting the arrangements and appliances in use there for the detention of a ship's passengers, disinfection and sterilization of clothing, and isolation of infectious diseases, the system of certificate granted, and the other details connected with the work of that station and the sub-station at Quebec. The visitors expressed themselves fully satisfied with what they had seen,

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one of them remarking they "had gone down to criticize, but found only a great deal to admire."

The successful administration of such an important branch of the public service as quarantine, cannot fail to effect a marked influence on international trade, including that with the neighbouring states, as forestalling delays and blockades at international boundaries, which if occurring might prove a source of inconvenience to the travelling public.

In my report for 1892 appeared a description of the various quarantine stations, and I have thought it well to supplement the description of Grosse Isle station in my present report with a sketch of its present condition, as now completed.

GROSSE ISLE QUARANTINE STATION.

The building for the disinfection of luggage contains three jacketed disinfecting chambers, constructed of iron, each measuring 25 ft. in length by 8 ft. 6 inches in height, and 8 ft. 6 inches in width. In these there can be treated at one time the luggage of more than one hundred immigrants. From each of these chambers a tramway leads to the wharf and on this are run trucks containing, in rectangular wire cages, the luggage to be disinfected, loosely scattered. If an immigrant has not sufficient luggage to fill one of the cages, he is given a coarse sack in which to put his belongings, and as many of these sacks are then put into each cage as are necessary to fill it. Each immigrant receives a tag bearing a number corresponding to that on the cage or sack in which his worldly goods are stored, so that there can be no mistake about each getting back his own property. When one of the trucks has received a load of cages it is run into one of the iron chambers, steam is turned into the jacket and is retained there until the dry heat in the centre of the chamber registers a temperature of 208° to 210° F., the fact being that when the steam is admitted into the chamber it will go above boiling point, and, therefore, not deposit any moisture on the clothing undergoing disinfection. Upon the steam in the jacket reaching a temperature of 208° to 210° F., the vacuum pump is used, and its action is maintained until there is only about half an atmosphere in the chamber, when the steam is left on and a pressure of about 15 pounds to the square inch is obtained, sufficient to force it thoroughly into the clothing. The temperature of the steam is increased until it reaches from 220° to 230° F., and after the clothing has been subjected to this for half an hour the exhaust pipes are opened, and as much steam as possible is allowed to escape of itself, after which the exhaust pipes are closed and the vacuum pump is again set to work, and this is followed by admitting cold air to destroy the vacuum. The truck is then taken out and its contents given back to their owners. During the process of disinfection the temperature of the steam in the chamber is automatically registered on a dial, easily seen by those in charge. Each dial is then marked with the name of the ship, etc., in connection with which it has been used, after which it is filed away for future reference, if need be. All articles of rubber, fur, leather or such other material as cannot be subjected to steam are disinfected by a perchloride of mercury drench, of the strength of one part to a thousand. There are also appliances for disinfecting by means of sulphurous acid.

On the floor above the disinfecting chambers and boilers are the dressing rooms, of corrugated galvanized iron, with each of which is connected an apparatus for

administering a douche. The advantage of the douche is that it washes away all dirt at the moment of contact, whereas when a person performs the act of ablution in an ordinary bath a scum rises to the surface, and a portion of it is carried away on the body when leaving the water.

The detention buildings are separate constructions for the cabin, intermediate and steerage passengers, and the accommodation approaches as nearly as possible that to which they have been used on board ship. Each building is admirably lighted and contains dining room, lavatories, sitting rooms and sleeping quarters, the last named being fitted with detachable bunks of galvanized iron. Each line of steamships supplies the bedding for its own passengers, the quarantine authorities only providing the bedsteads. In the building for saloon passengers, there is accommodation for 124; intermediate 200, and steerage 1,500.

Another building constitutes the bath house. The baths are of enamelled iron, and the other fittings are of corrugated galvanized iron, which is used on account of its non-absorbent properties. In this building, there is also the bacteriological laboratory.

About a mile and a half away from these buildings, is the hospital, a brick structure capable of accommodating 100 patients, and in addition there are hospital sheds, which can be used in case of emergency.

There are forty buildings on the island, and it is almost unnecessary to say that everywhere the utmost cleanliness prevails. Two steamers were used at the island, one of which was constantly engaged night and day in inspection service; the other carried the sulphur dioxide fumigating blast and mercuric chloride drench for the process of disinfecting vessels. This second boat also serves to land passengers, &c., from vessels in quarantine, to carry mails and supplies, to take up to Quebec convalescents discharged from the quarantine hospitals, and to act as a reserve inspection boat.

SMALL-POX.

Small-pox prevailed in Europe to a considerable extent this year, and although it was brought into the Grosse Isle station in May last, the disease was arrested and stamped out without spreading. A very marked outbreak prevailed in the United States in the spring, and the proportions it assumed were so threatening that I undertook, with the sanction of Council, a temporary service for medical inspection and vaccination at certain points along the inland frontier between the United States and Canada. For this service, medical inspectors were appointed for a limited period at the following ports of entry, viz., in Ontario:—Windsor, Sarnia, Fort Erie, Niagara Falls; in Quebec:—Lacolle, Sutton, Coaticooke, Cookshire, Lennoxville; in New Brunswick:—McAdam Junction; in Manitoba:—Emerson, Gretna; and for the North-west Territories, at the point of the newly opened railway, Estevan. Their duty was to board incoming passenger trains at the points named, to inspect all passengers, to vaccinate as they might consider necessary, and to prevent the entry of luggage, or passengers in circumstances where precaution for the safety of the public health would justify such action. Owing to the comparative disappearance of small-pox across the frontier, this service was partially suspended 31st August last, and finally dispensed with at the end of September. In addition to the precautions taken by the

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medical inspectors referred to, a circular was sent to every frontier Customs officer calling his attention to the fact that he is under the regulations a quarantine officer and fully empowered to carry out all the provisions of the Quarantine Act. I urged the duty of the greatest vigilance, to telegraph me any case of infectious disease which might be brought to the officers' notice, and issued general instructions for their course of action. The monthly reports made by these medical officers showed that they exercised all possible care in inspection, having at the same time regard to a minimum hindrance to travel. All incoming passengers crossing the United States frontier either afforded satisfactory evidence of vaccination or submitted to the operation.

ST. JOHN, N.B., QUARANTINE STATION.

The quarantine station in the harbour of St. John, N.B., Partridge Island, has been supplied with apparatus and appliances for meeting modern requirements, and as soon as some needed repairs to the buildings, &c., are completed, will be in a thorough state of efficiency. The apparatus there now consists of a steam disinfecter with jacket and chambers, gauges, pressure thermometer with electric communication, wire basket and carrying rod, and basket track, a six-horse power boiler, baths, sinks, and two iron clothes boilers over a brick furnace. On the 1st of July last, Dr. W. S. Harding, who, for forty-seven years, had been employed in quarantine service at the port of St. John, first under the Provincial and subsequently under the Dominion Governments, was placed on the retired list, and Dr. J. C. March was, by Order in Council, appointed his successor, commencing his duties with the new fiscal year.

HALIFAX, N.S., QUARANTINE STATION. -

The Halifax quarantine station at Lawlor's Island has been placed in a thorough state of efficiency; the deep-water wharf is pronounced to be a well-built and commodious structure, and the buildings are of sufficient capacity to accommodate any number of sick or healthy persons likely at any one time to require isolation. The new disinfecting apparatus is complete, and is reported to be working satisfactorily. The means also for cleaning and disinfecting a vessel when at the wharf are thoroughly efficient.

SYDNEY, N.S., QUARANTINE STATION.

The harbour of Sydney, N.S., having within it several ports for the entry of vessels has hitherto made it difficult for one inspector to satisfactorily perform his duty without causing more or less detention to shipping. Vessels from all parts of the world frequently enter this harbour for coal or supplies, and after leaving it proceed to their ports of discharge, via the St. Lawrence, but having already touched Sydney, they are then from a Canadian port and outside of quarantine regulations. Under these circumstances, a joint inspector, Dr. H. B. Macpherson, was this year appointed at the port of North Sydney, to act in conjunction with Dr. McLeod, the medical inspector at Sydney. This appointment simply places the whole harbour under the quarantine administration of organized ports. Hitherto Customs officers at the harbour ports, other than Sydney itself, who by the regulations are *quasi* quarantine officers, had to be frequently called on to discharge this duty.

BRITISH COLUMBIA QUARANTINE STATION.

The British Columbia Quarantine Station at William Head has proved very effective in the precautions taken by Dr. McN. Jones, through inspection and disinfection. A dioxide blast has been placed on the wharf, the attendant steamer "Earl" has been thoroughly overhauled and placed in efficient condition, and when some further requirements have been supplied to the station, it will be in a thorough state of efficiency.

QUARANTINE REGULATIONS.

The quarantine regulations requiring revision, I authorized an amended edition of the same to be prepared, and as soon as this was done, an Order in Council, in virtue of Chap. 68, Revised Statutes, was passed on the 10th September last, sanctioning such regulations, and they were forthwith put into circulation.

DRESDEN SANITARY CONVENTION.

A communication was received by this Government, towards the close of last year, from the Imperial authorities that although the Dresden Sanitary Convention had been signed on the part of Her Majesty's Government on behalf of the United Kingdom only, it was open to any of the British colonies and foreign possessions to become parties to the convention, and in April last the Foreign Office asked to be furnished with an expression of the views of the Canadian Government with regard to the accession of the Dominion to the convention. After careful consideration of the minutes of the latter proceedings, and the conclusions agreed upon, I decided that the measures for preventing the entry of cholera were such as could be satisfactorily worked in connection with the Canadian quarantine regulations, and I recommended to Your Excellency in Council that Canada should become a party to the convention; an Order in Council to that effect was passed on 25th August last, and the Right Honourable the Secretary of State for the Colonies was duly notified thereof.

MEDICAL CONGRESS AT ROME.

An invitation from the Commissioners of the International Medical Congress for Canada to participate therein at its meeting in Rome, Italy, in April last, was submitted by me to Council, and as it was deemed unadvisable that any of the medical officers connected with the service of Canadian maritime sanitation should be absent from their duties at that period of the year, it was decided that Dr. W. Tobin, of Halifax, N.S., who was then in Paris, should be authorized to represent Canada at such congress. Dr. Tobin proceeded to Italy in due course to be present at that convention in Rome, and he furnishes a detailed report of the proceedings of this meeting dwelling on the more important subjects that were discussed, and the papers of special importance that were read on that occasion. The subject of quarantine occupied considerable attention, especially in connection with cholera and the precautions taken at seaports to prevent the introduction and spread of that disease, and Dr. Tobin remarks it was shown that by isolation, disinfection and precautions taken, Italy had been saved from an extensive epidemic during the previous summer.

Department of Agriculture.

SUMMARY OF REPORTS.

The following synopsis of the reports from the medical superintendents of the various quarantine stations shows the work done by them during the past year, and gives evidence that they are well alive to the necessity of vigilance in warding off contagious diseases from gaining a foothold on our shores.

Dr. F. Montizambert, Superintendent of the Canadian Quarantines, states in a special report on the St. Lawrence quarantine service that small-pox, enteric fever, measles and diphtheria were reported, and found on board certain vessels arriving: that the admissions to the quarantine hospital during the season were 106, and that four deaths occurred, all from measles. Small-pox was arrested and stamped out at once. The disinfection of the luggage of all immigrants arriving from countries or districts infected with Asiatic cholera was scrupulously carried out. In his report on the Grosse Isle station he embraces a variety of subjects, prominent amongst which are the contagious diseases prevalent in European countries, whence vessels arrived in the St. Lawrence this season; the course of cholera in Europe is discursively dwelt upon; the bubonic or Chinese plague engrosses a considerable portion of his report and contains many details respecting this disease. The course of small-pox, both in Europe and the United States, together with the centres visited by special outbreaks, is described, and he draws attention to the fact that this much feared disease still prevails to a considerable extent in the United States.

The Revised Quarantine Regulations, prepared under my direction, and which have been made general for all maritime and inland ports of Canada, are reported by Dr. Montizambert, as bringing the system of medical inspection, isolation, and disinfection of incoming vessels when disease has occurred, fully up to the modern scientific conclusions. He refers to the abolition, except in very special cases, of the old system of quarantine in Great Britain. To quote his words—"The keynote of the old system was prolonged detention; that of the modern system, is prompt disinfection. This, however, is becoming so generally known that the retention of the old name as matter of convenience is yearly becoming less and less liable to lead to misunderstanding." Preventive inoculation against cholera receives a large share of attention, together with the anti-toxine treatment and prevention of diphtheria. The new process of electrical sanitation is another matter which Dr. Montizambert describes at some length. The International Sanitary Conference at Paris during the past year is looked upon by him as involving considerations of as vital interest to Canada as to the United States, delegates from which latter country at Paris, strongly urged regulations governing the movements of emigrants to America. Lastly, the meeting of the American Public Health Association in Montreal during the year, receives considerable notice and the visit to Grosse Isle of a large number of the delegates attending that meeting, is described, together with the favourable impressions made upon them of its present conditions and their appreciation of the different appliances and processes of that station.

Dr. Wickwire, inspecting physician at Halifax, Nova Scotia, quarantine station, reports the present year as comparatively uneventful from a quarantine point of view. It was not found necessary to remove any patients to the hospital during the year, the slight cases of ordinary sickness not requiring quarantine isolation. He reports careful disinfection of the luggage and other effects of all persons from

countries known to be more or less affected, in accordance with my instructions on that head.

Dr. Harding, who was inspecting physician at the quarantine station at St. John, N.B., to the 30th June last, reports no infectious sickness on any of the 75 vessels inspected by him; and Dr. March, his successor, from the 1st July last, reports that he inspected 56 vessels from sea officially, and visited 176 others unofficially, principally coasters. Two cases, where vessels required cleaning and disinfection, are specified in his report.

Dr. McLeod, inspecting physician at Sydney, N. S., reports inspecting 106 vessels arriving at his quarantine station. The importance of careful inspection at Sydney is shown in the statement he makes, that vessels, after leaving Sydney Harbour proceed to their ports of discharge via St. Lawrence, but are then registered as coming from a Canadian port, so do not require to come under further quarantine regulations.

Dr. Macpherson inspecting physician at North Sydney, reports inspecting 29 vessels, and that there was no case of infectious or contagious disease present in any of them.

Dr. Conroy, inspecting physician at Charlottetown, P. E. I., reports 41 vessels from foreign points inspected by him during the year, all of which were found free from any epidemic contagion.

Dr. McMillan, inspecting physician at Pictou, N.S., quarantine station, reports inspecting 19 vessels during the past season and that no cases of sickness were found by him.

Dr. P. A. McDonald, inspecting physician at Point Hawkesbury, N.S., quarantine station, reports inspecting 80 vessels arriving, and that no cases of infectious or contagious disease were apparent.

Dr. J. Macdonald, inspecting physician at Chatham, N. B., reports inspecting 127 vessels on none of which was contagious or infectious disease found by him.

Dr. J. Pelletier, the medical officer inspecting at Matane, P.Q., inspected only five vessels on arrival there, the others entering that port having already been inspected at Sydney or elsewhere. He reports a falling off in the number of arrivals of vessels at Matane, owing to various circumstances which he explains.

Dr. McN. Jones, superintendent of quarantines in British Columbia, inspected every vessel requiring such treatment and reports the season comparatively uneventful. In March last the SS. "Empress of India" arrived with no sickness on board but reported having landed two steerage passengers in Japan with what was considered mild small-pox. He thoroughly disinfected the ship and passengers, all of whom he found to have been vaccinated and apparently in a state of perfect health. He then allowed them to proceed to Vancouver where after 6 or 7 days a mild case of small-pox showed itself while the passengers were being detained for transmission to the United States. This case, Dr. Jones says, showed itself in from 18 to 19 days after the appearance of the disease at Japan. He further reports that when early in June the outbreak of plague at Hong Kong was reported, he issued orders to the pilots that all vessels arriving must be inspected at a distance from Vancouver, and luggage thoroughly disinfected. These orders were carried out and as the Japanese

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authorities allowed no Chinese passengers to enter that port without thorough disinfection this extra precaution materially assisted in preventing the plague from being carried abroad, and no case of this dread disease was brought to our shores.

Dr. Duncan, inspecting physician of Sound vessels at Victoria, B.C., reports no infectious or contagious disease on vessels arriving at that port. He inspects such steamers as are employed in Puget Sound passenger traffic from United States ports, their passengers according to his report numbering on an average 1,000 per month.

Dr. Gauvreau, inspecting physician for mail steamers at Rimouski, P. Q., reports making 29 inspections up to the date of my report. These inspections made by him materially facilitate Dr. Montizambet's subsequent operations with regard to the steamers visited by Dr. Gauvreau, who reports to the former any cases requiring quarantine action.

Dr. A. C. Smith, resident physician at the Lazaretto, Tracadie, N.B., reports 21 inmates in that institution, 12 of whom are males and 9 females, and that there was not a single death to record during the year. No new cases of leprosy are reported as having appeared during the past year. New Lazaretto buildings are now in course of erection and when completed they will materially aid the work of the sisters in charge of the afflicted patients, these sisters being untiring in their efforts to ameliorate the condition of the unfortunate beings who are secluded from the outside world.

VI.—STATISTICS.

The Statistical Branch of the Department of Agriculture is based upon the Union Act which specifically assigns Census and Statistics to the exclusive authority of the Parliament of Canada.

In accordance with this assignment of duties the Parliament of Canada passed chap. 21, Acts of 42 Victoria.

In the Revised Statutes of Canada, 1886, this Act forms chapters 58 and 59. Chap. 60 is the authority for the collection of criminal statistics.

By chap. 15, Acts of 1890, the collection and publication of labour statistics are defined to be part of the duties of the Minister of Agriculture, acting under the general authority conferred upon him by chap. 59, R.S.C.

As misapprehension seems to exist leading to indiscriminate and unofficial publication of statistics, sections of the Act, chap. 59, R.S.C. are here given:—

The first section provides for the collecting, abstracting, tabulating and publishing vital, agricultural, commercial, criminal and other statistics by the Department of Agriculture.

The fourth section gives the Minister of Agriculture power to arrange with any Lieutenant-Governor in Council or with any provincial organization, for the collection and transmission of information collected under provincial systems.

The fifth section says:

“The Minister of Agriculture may in collecting statistics, in the manner provided by this Act, call upon any and all public officers to furnish copies of papers and documents and such information as lie respectively in the power of such officers to furnish, with or without compensation for so doing, as is regulated from time to time by the Governor in Council.”

The sixth section provides for the publication of an abstract and record of the various departmental or other public reports and documents.

The seventh section gives power to the Governor in Council to authorize the Minister of Agriculture to cause special statistical investigations as regards subjects, localities or otherwise, to be made.

The eighth section empowers the Minister of Agriculture to cause all statistical information obtained to be examined, and any omissions, defects or inaccuracies discernible therein, to be supplemented and corrected as far as practicable.

The ninth section is as follows :

“ Every one who wilfully gives false information or practises any deception in furnishing information provided for by this Act shall, on summary conviction before two justices of the peace, be liable to a penalty not exceeding one hundred dollars.”

By another section in the Act the Governor in Council is empowered to appoint temporary clerks or employees for an indefinite period.

The evident aim and intention of these several Acts is the establishment of a Bureau of Statistics, which shall form part of the Department of Agriculture, and in which shall be consolidated the general statistics of the country, the officers in charge of which shall have every facility necessary to enable them to obtain the needed statistics from the several departments of the Federal Government, of the Provincial Governments, or by special statistical investigations.

A general collection and issue of Dominion Government statistics, by the Statistical Bureau, as directed by the statute, would establish uniformity, coupled with increased accuracy, and large economy in compilation.

The public appear to appreciate the efforts of this division of the Department of Agriculture, the preparation of general statistics in answer to inquiries having been greatly in excess of former years; the aim is to give all inquirers the best information obtainable. The statistician's office has become a general inquiry office for all parts of the world.

In the course of these inquiries the statistician has been forced to confess the fact that Canada lags behind other countries in many branches of statistics.

In no branch have there been so many inquiries as in that relating to agricultural statistics. These inquiries have necessarily been answered in a most unsatisfactory way, owing to the absence of any system of collecting agricultural statistics coextensive with the Dominion. If a good plan, ensuring accuracy and early publication, could be adopted in Canada, the value to farmers and business men of this information can hardly be over-estimated.

HEALTH STATISTICS.

No steps have been taken as yet to provide a better system of collecting vital statistics than that which was abrogated in 1891.

In the provinces of Ontario, Quebec, New Brunswick, British Columbia, Manitoba and the North-west Territories, the provincial and territorial authorities have placed on the statute-books Acts dealing with the collection of vital statistics. Section 4 of chapter 59, Revised Statutes, already quoted, gives the necessary legisla-

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tive authority, to enable my department to join the provincial authorities in making arrangements for the better collection of different kinds of statistics, without limiting the power of this department to enter upon provincial fields not worked by provincial organizations.

By a combination of forces, the result would be more satisfactory than by any other system that could be originated by the federal authorities. Instead of clashing statistics, there would be statistics having a joint approval.

This plan could be carried out in respect to agricultural statistics; so that while each province could have its own statistics for publication, the world at large would have those of the Dominion. The very great attention given to crop statistics in the United Kingdom, the United States, France, Germany and Australia, and the large monetary operations based upon them make it almost imperative upon Canada to provide her farmers and business men with these aids to successful efforts.

CRIMINAL STATISTICS.

Chap. 60 of the Revised Statutes of Canada gives the special authority under which criminal statistics are collected. During the past year 281 persons made returns to the Statistical Branch of the Department of Agriculture. By provinces these returns are as under:—

Prince Edward Island.....	6
Nova Scotia.....	43
New Brunswick.....	33
Quebec.....	40
Ontario.....	136
Manitoba.....	6
British Columbia.....	11
North-west Territories.....	6
Making a total of.....	281

The compilation which is published as an appendix shows that the number of persons convicted of indictable offences was 4,630 in 1893 as against 4,040 in 1892 or 9.36 per 10,000 inhabitants in 1893 against 8.23 per 10,000 in 1892. If to the number of convictions for indictable offences is added the number of summary convictions the result is a total of 35,653 convictions in 1893, against 35,407 in 1892. The result is that there was one conviction for each group of 139 persons in 1893, and one for each group of 140 in 1892, showing a small increase.

The system of compiling the returns has been thoroughly examined and several changes made which will have the effect of rendering the criminal statistics of the country more accurate than they have been. For the first time the returns of the Mounted Police have been carefully examined and tables prepared for each year from 1883 to 1893 (both years included). With these changes it is believed that the Criminal Statistics of Canada for 1893 are the most complete yet published by my department.

In the earlier years of the compilation of the criminal statistics the arrangement differed from that under which the tabulation was carried on since 1884. Returns previous to 1884 having been in this way deprived of their value for purposes of comparison these are now being compiled over again so as to bring them into unison with the subsequent years.

CENSUS.

The third volume of the Census has been printed and the fourth is in the hands of the printer.

An analysis of the mechanical and manufacturing establishments of the Dominion based upon the amount of output as given in the census returns of 1881 and 1891 has been a laborious work occupying the staff for more than a year, 125,900 industrial establishments having to be closely examined. The results have proved that the effort was a wise and useful one.

The groups decided on were: Group 1, establishments having an output under \$2,000 a year; group 2, establishments having an annual output from \$2,000 to \$12,000; group 3, those having a yearly output from \$12,000 to \$25,000; group 4, those having an annual output of \$25,000 to \$50,000; group 5, those with a yearly output of \$50,000 and over.

The number of industrial establishments examined was 125,891, and the following particulars were tabulated:—

1, number; 2, fixed capital, divided into (a) capital invested in lands, (b) in buildings, (c) in machinery and tools; 3, working capital; 4, hands employed, divided into (a) men over 16 years old, (b) women over 16 years old, (c) boys under 16 years, (d) girls under 16 years; 5, amount of wages paid; 6 value of raw material used; 7, value of articles produced.

Much highly important information has been brought to light by this grouping, and for the first time in the history of Canada we have such an analysis as will give needed knowledge of the growth and development of our mechanical and manufacturing industries.

The following is a statement of results:

CANADA.

Mechanical and manufacturing establishments grouped according to value of articles produced.

	1881.		1891.		Increase 1891 over 1881.	Per cent of increase.
	Value of output.	Per cent of total output.	Value of output.	Per cent of total output.		
Group 1.....	\$ 20,734,080	6·7	\$ 32,255,192	6·7	+ 11,521,112	+ 56·0
do 2.....	64,939,604	20·9	93,260,957	19·6	+ 28,321,353	+ 43·6
do 3.....	36,808,242	11·9	47,709,005	10·1	+ 10,900,763	+ 29·6
do 4.....	33,482,170	10·9	42,238,542	8·8	+ 8,756,372	+ 26·1
do 5.....	153,767,771	49·6	260,795,190	54·8	+ 107,027,419	+ 69·6
Totals.....	309,731,967	100·0	476,258,886	100·0	+ 166,527,019	+ 53·7

It will be observed that the increase in 1891 in the total output of the five groups is \$166,527,019 or 53·7 per cent; and that the increase in group 5, being establishments having an output of \$50,000 and over, is 69·6 per cent.

It will also be noted that group 1, which includes all the smaller industries of the country, formed 6·7 per cent of the whole, both in 1881 and in 1891.

These two facts effectually dispose of the criticism of the Census of 1891 that it included a greater proportion of the small industries than did the Census of 1881,

Department of Agriculture.

and that therefore the increase shown by the 1891 Census did not fairly represent the increase the country had made.

All the groups have made relative increase of a most satisfactory character, and the country is to be congratulated that the increase has been so fairly distributed among all the groups.

Fuller information on this important investigation will be given in an appendix to this report.

THE "YEAR BOOK" (STATISTICAL ABSTRACT).

The Year Book for 1893 has been prepared, printed and distributed. It has been entirely remodelled and a large quantity of new material introduced. The demand for it has been very great. The utmost care has been exercised in distributing it; notwithstanding, the supply has not been equal to the demand, requests from France, Germany, the United States, Japan and other foreign countries as well as from all parts of the British Empire having been received. The demand from Australia has been much in excess of previous years.

The Statistical Year Book of Canada is published under authority of Chap. 59, Sec. 6, Revised Statutes of Canada.

Several thousands of circulars have been sent out on a variety of subjects connected with the Year Book and other special investigations, and I am happy to be able to bear testimony to the willingness with which the various provincial governments, business men, farmers, and the public generally have answered the circulars. An immense amount of gratuitous assistance has thus been given.

GENERAL STATISTICS.

A large amount of statistical work has been done under authority of section 7, Chap. 59, Revised Statutes.

An examination of the forest wealth of Canada has been printed and will appear as an appendix to this year's report.

The information contained in this report has been collected from a great number and variety of sources, some of the principal being the Provincial Crown Lands returns, the reports of the Dominion departments of the Interior, Indian Affairs, Customs, Inland Revenue, Railways and Canals, the Geological Survey reports, the Census Returns of 1871, and 1881 and 1891, the trade returns of Canada, the United Kingdom and the United States, evidence given before parliamentary committees and other statements of experts. Use has also been made of the United States Census returns under Mr. Sargent, and the reports of the United States Forestry Division of the Department of Agriculture under Mr. B. E. Fernow. To secure trustworthy statistics of the forests of Europe, Lord Rosebery, then Foreign Secretary, obtained expressly for this purpose, from the British representatives in the different European countries, original reports on their forests. Acknowledgment is due to the authorities of several of the provinces for having readily supplemented their official reports with additional information when required. With much labour results have been deduced from the scattered data from these and many other sources

so as to present as full and accurate a view of the whole subject as can be obtained in the present state of information.

Several bulletins have been issued, among them one on poultry and eggs, and another on butter and cheese. These have been largely sought after, many thousands having been distributed on application of persons wanting them. The Statistical Division is now engaged in sending out to the proprietors of cheese factories and creameries, circulars asking for particulars of the business in cheese and butter for the year 1894. A large number of replies have been received, which, when compiled, will enable all interested to obtain statistical information that will be useful to them.

Investigation has been made into the subject of viticulture in Canada and the results when fully obtained and compiled will be of interest to the general public.

Material has been collected with respect to flax growing in Canada.

The subject of sugar beets and beet-root sugar has also engaged the attention of the Statistical Division and much information has been collected.

During 1893, the Marquis of Ripon forwarded to His Excellency the Governor General, a letter from the Trade Committee of the Imperial Privy Council, generally known as the Board of Trade, stating that Mr. Bateman, a principal clerk of that Board, would visit Canada for the purpose of procuring information of a statistical character. This letter was referred from the Privy Council to my department, as dealing with statistics, and Mr. Bateman, subsequently, on his arrival here, had a long interview with the Dominion Statistician. The range of Mr. Bateman's mission may be gathered from the following substance of a letter subsequently written by him to that officer: "In regard to the various statistics of the Dominion which we have discussed, including those of trade and commerce, the chief points relate to

1. Valuation of imports and exports.
2. Registration of the origin of imports and the disposition of exports.
3. A classification of the articles of imports and exports."

The views and recommendations of the Colonial Office upon these three questions are contained in a report of the committee, copies of which have been communicated to the Dominion Government, together with Mr. Bateman's report to the Imperial Statistical Institute at its biennial session held in Chicago, together with a copy of the resolution passed by that body. The latter report gives the latest information as to what is being done in other countries in furtherance of the comparability of trade statistics. Mr. Bateman in this letter, expresses the hope that it may be found possible to carry out the suggestions of the Colonial Office Committee in respect to classification and valuation, at any rate by furnishing an abstract supplementary statement of exports and imports. He attaches great importance to obtaining more complete information with regard to the origin of imports and exports and the trade with the United States, and he would be pleased to hear any suggestions in the way of overcoming existing difficulties.

The whole subject is of very great importance and I am now in correspondence departmentally with authorities of other countries with a view to effect arrangements that may produce the requisite information.

The whole respectfully submitted.

A. R. ANGERS,
Minister of Agriculture.

Department of Agriculture,
OTTAWA, 31st December, 1894.

Department of Agriculture.

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QUARANTINE

No. 1.

ANNUAL REPORT OF THE GENERAL SUPERINTENDENT OF CANADIAN QUARANTINES.

F. MONTIZAMBERT, M.D., EDIN., F.R.C.S., D.C.L.

31st October, 1894.

SIR,—I have the honour to submit this, my annual report, to the 31st October, 1894, as General Superintendent of Canadian Quarantines.

The Canadian quarantine system has been this year threatened and beset from all quarters and at all points, notably on the Atlantic seaboard by Asiatic cholera and small-pox from Europe, on the Pacific seaboard by the bubonic plague from China, and along the frontier by small-pox from the United States.

Asiatic Cholera.—This disease has prevailed in parts of Europe throughout this season. Its most serious devastations have been in Russia, in Poland, and in Austria-Hungary. During last winter the disease lingered in several of the southern and south-western provinces of Russia, and in Turkey. In the cold months there were no cases in Western Europe, except possibly in the departments of Finistere and Morbihan in France, where the epidemic of last year had not been entirely stamped out. With the return of warm weather the disease began to spread westward from the western provinces of Russia. Its reappearance in Poland was soon followed by its transmission across the frontier into the neighbouring provinces in Prussia, especially Silesia, in Austria,—Hungary, especially Galicia, and later into Holland and Belgium.

A telegram from Madrid, under date of May 10th, contained a report by Dr. Montaldo. He had been sent to Lisbon by the Spanish government, to investigate the epidemic in that city. During the summer of 1893, he stated a serious choleric epidemic spread all over the Portuguese colony of St. Vincent, Cape de Verd Islands. The epidemic finally became one of true Asiatic cholera of the most serious character. It caused numerous deaths. But the Portuguese government, so severe with foreign countries that it established quarantine against Spanish arrivals because there were suspicious cases in France last year, took no sanitary precautions whatever—says Dr. Montaldo—against arrivals from St. Vincent. All vessels from that colony were freely admitted at Lisbon by superior orders, including even the "Santa Tome," a vessel which had cases of undoubted cholera on board. Naturally the disease took hold on Lisbon, and spread quickly, thousands of people having been attacked. It has been fortunately of a mild type. But there is always the fear that, as at St. Vincent, an epidemic of true cholera may follow the first comparatively harmless outbreak.

In view of the possibility of immigrants from any of these infected countries bringing clothing and effects soiled with cholera discharges, and the danger to this country and continent which would follow the handling and washing of such clothing, etc., at inland destinations, all packed luggage from cholera infected countries arriving in the holds or steerages of passenger vessels, has been, by your direction, throughout this season, steam sterilized at the ports of arrival before being allowed to pass inland.

The list of infected countries has changed from time to time with the movements of the disease. It has included Constantinople, the whole of Russia, Poland, Holland, Belgium and Portugal, and parts of Germany, of Austria-Hungary, and of France.

How much cholera has thus been "stamped out" can of course only be assumed. There is, however, at least this negative evidence of successful work, that no cholera has declared itself in Canada.

This sterilization of luggage has been carried out at the deepwater termini of the railroads immediately upon the landing of the immigrants. It has, therefore, not involved any delay to healthy vessels. All vessels on which there had not been a death or attack from cholera have been, after inspection, at once given free pratique, even though they may have come from an infected port. This is in accordance with the conclusions and rules adopted by the Dresden International Conference.

In this connection I may remark that although the United States government again this year requested and obtained from you permission to again station their medical inspectors at the St. Lawrence quarantines, no officers have been detailed for such service. The fact that they were not sent this year may, I think, be taken to imply that the reports on our system and on our last year's work have been considered satisfactory.

It was decided by the Dresden Conference that rags sent in bulk, and under the customary conditions which apply to rags as an article of merchandise, would not be susceptible of cholera, and would, therefore, be free from all cholera restrictions. Continued bacteriological experiments have confirmed the belief that the causative micro-organism of Asiatic cholera perishes quickly on drying. The processes of spreading out, sorting, &c., which rags destined for baling undergo in the collecting warehouses, usually extend over several weeks or even months. During these processes such rags would naturally become dry. Dryness, moreover, would presumably be an essential condition to fit the rags for baling, so as to ensure against heating, fermentation and injury from moisture within the bale. Such rags would, therefore, not seem to require such prohibition for fear of cholera in cholera seasons as might reasonably be enforced in other epidemics for fear of small-pox or some of the other infectious diseases, the causative micro-organisms of which do not similarly perish on drying. I was, therefore, enabled to recommend for your consideration in February last that the then existing prohibition of rags from cholera-infected countries might be modified on the lines of the Dresden Conference, and the precedent since established by England, so as to admit freely, as far as cholera is concerned, rags packed in bales compressed by hydraulic pressure, surrounded with iron bands, and with marks and numbers showing their origin. The micro-organism of cholera perishes on drying. Baled rags are dried rags. Therefore rags in bale need not be prohibited from any country at any time on account of cholera.

Some of the medical papers have seriously discussed whether Asiatic cholera be not becoming endemic in Europe, especially in Russia where, in this, the third consecutive year of its prevalence, the disease has gained a severity greater than in either of the two preceding years. Thus during the week ending September 8th, 6,376 new cases, and 3,192 deaths were reported in Russia proper, and the weekly average of new cases in Russian-Poland at that time was 5,000, with a mortality of about fifty per cent. Possibly the explanation of this long persistence of the disease is that its natural tendency to die out is being counteracted by the increased facilities for its reintroduction arising from the large areas which are now placed in rapid communication with each other. Observation again this season has confirmed the belief in the axiom that cholera is a filth disease carried by dirty people to dirty places, and chiefly spread by polluted drinking water. And this should be still the text for continued and renewed sanitary efforts.

If it be true that the cholera germ has become domesticated in Europe, and hence that the danger of cholera importation to this country has become permanent and continuous, our precautions must be permanent and continuous also, and that

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more especially during the periods of seasonal incidence. Cholera cannot come to this country except by a ship. Vigilance at the seaports is therefore our guarantee of safety.

The Bubonic Plague.—The first extensive epidemic of this disease of which history has given us any definite account, occurred in the 6th century. That outbreak is usually described as "The plague of Justinian" since it persisted during nearly the whole of that emperor's long reign. It seems to have had its origin in Lower Egypt in 542. From its starting point it swept with increasing fury over Asia Minor. Constantinople was visited, with the result that for some days the people died, it is stated, at the rate of 10,000 daily. During the seventy years of its then existence this fearful disease visited all parts of the known world, and its victims were numbered by millions. In the 14th century it killed, under the name of the Black Death, 13,000,000 people in China, 24,000,000 in other oriental countries, and not less than 25,000,000 in Europe. It is the disease of the Great Plague of London, which occurred in 1665,—when the total number of deaths is placed by Defoe at 100,000,—and of the plague at Marseilles and Toulon in 1720. Its last appearance in Europe was in Dalmatia and Turkey in 1840-41. This bubonic pest has never ceased to exist in China, showing itself more or less frequently, and spreading from there from time to time to Persia Arabia, and Asiatic Russia.

Sanitary authorities claim that preventive medicine has achieved the extinction of the plague in Europe, through the development of the quarantine system with reference to the indigenous habitats of the disease. Hirsch, in his handbook of geographic and historic pathology, says: "I cannot, in fact, understand how any one, criticising the facts without prejudice, and having regard to the state of the plague in the east, can for a moment hesitate to attribute the chief cause of the disappearance of the plague from European soil to a well regulated quarantine system."

With regard to this recent outbreak, it would seem that the plague has been known to be present in the Yunnan district of southern China for at least fifteen years, in form generally sporadic, at times epidemic in malignant form. Briefly it may be inferred that the disease found its way from Yunnan along the southern border of Kwang-se to Pakhoi, from whence it travelled northward through the Kwang-tung province to Canton. From the latter city it was readily conveyed in May last to Hong-Kong by persons removing while actually suffering from the disease, or during the period of incubation. The steamer journey between the two places occupies only about eight hours, and during the height of the epidemic it was quite a daily event for a few deaths to occur en route. In Yunnan, according to Mr. Rocher, pigs, goats, rats and other animals die in great numbers before man is affected. In Canton rats were the only animals observed to suffer. An exceptional mortality was observed amongst them two or three weeks before cases of plague were noted. A high mortality amongst rats in a district of the city quite free from sickness, was, according to Dr. Alex Rennie, of Canton, most surely followed by an outbreak of plague.

Yersin remarked also that in the laboratory, where he made his autopsies of animals, there were many dead flies. Examination proved their bodies to contain the plague bacillus, and inoculation of a guinea pig from such flies caused death within 48 hours with the specific lesions of the disease. It would seem, therefore, that flies may propagate plague by the infection of food, etc., by their feet and their excretions, as has been already established for cholera.

Although as concerns man, all classes suffered from the plague, certain conditions of life seemed to effect the susceptibility. First the greater number of those attacked were women and children, female children especially, that is, those living most indoors; secondly, those living up-stairs escaped the disease much more readily than those living on the ground floor; thirdly, the boating population, consisting of some two hundred and fifty thousand people, who live and sleep on the water, enjoyed almost complete immunity, so much so that many well-to-do people, observing the circumstance, made a temporary home on the river.

The Imperial Japanese Government sent a commission to Hong-Kong in order to study the plague by modern methods, and especially as regards its bacteriological

character and its pathological and clinical features. This bacteriological research was under the care of the well-known bacteriologist, Kitasato. The pathology and medicine were under Prof. Aoyama.

Dr. Yersin, formerly assistant in M. Pasteur's laboratory, was sent in the beginning of June last to Hong-Kong by the French Colonial Minister.

The preliminary reports of these two observers, Kitasato and Yersin, have been published respectively in the *Weekly Abstract*, September, 16th, and the *Annales de l'Institut Pasteur*, September 25th, 1894.

The principal symptoms of the disease which ravaged Hong-Kong are stated by them to have been the following:—After a period of incubation, which lasts from three to five days (possibly a little longer, and some doctors say as long as eight days), the patient complains of high fever, often accompanied by delirium, and swelling of one or more of the lymphatic glands (buboes.) These swellings may antedate, coincide with, or follow the rise in temperature, and are accompanied by severe pain. The most common gland affected is one of the femoral chain, next an inguinal, next axillary (Kitasato); in seventy-five per cent of the cases in the groin, in ten per cent in the axilla (Yersin); and sometimes a cervical gland is affected. These buboes swell to the size of a hen's egg and become dark coloured, hence the name black death. The tongue is coated with a grayish-white or dark brown heavy fur. There is commonly headache; the heart is generally affected; occasionally vomiting and diarrhoea; these last two conditions are generally forerunners of a fatal issue. Patients who survive for five or six days may recover. In such the temperature does not fall until a week has passed, and convalescence is slow. Death frequently quickly follows the first onset of the disease, occasionally within forty-eight hours or even sooner.

Both Kitasato and Yersin differentiated and cultivated a distinct micro-organism which they describe. Kitasato found his in the blood, in the buboes, in the spleen, and in all other internal organs of victims of the plague. He claims that it fulfils all Koch's postulates: that it is found in every case of plague, that it is not found in any other infectious disease, and that with this bacillus it is possible to produce in animals the identical symptoms which the disease presents in human beings. From this evidence he concludes that this bacillus is the cause of the disease known as the bubonic plague, and that, therefore, the bubonic plague is an infectious disease produced by a specific bacillus. At the date of his report Kitasato had been unable to observe, so far, the formation of spores.

He states that the bacilli may enter the human body by three channels. By respiration, through an external wound, and by the digestive tract. Examples of the first two ways he states to have been abundant. Examples of the last mentioned way were not positive, but, considering that he discovered the bacillus in the intestinal canal, and that experiments in animals prove that feeding alone produces definite results, he concludes that the third is also a possible method of infection. Owing to his limited time he was obliged to leave, for the most part, his experiments as to the power of resistance of the bacilli to physical and chemical agencies, to a future time. He established, however, that smeared on coverglasses the bacilli perish after more than four days desiccation, or after a few hours direct sun light. Beef tea cultivations, which had been treated for thirty minutes in a water bath up to 80° C were destroyed. At 110° C in the vapour apparatus they were destroyed in a few minutes. Cultivations that had been mixed with 0.5 per cent of carbolic acid after more than two hours, or with 1 per cent after one hour, did not grow. Beef tea cultivations containing 0.5 per cent of quicklime grew sparingly after two hours; those containing one per cent of quicklime ceased to grow. Cultivations which had been mixed for more than two hours, even if containing only 0.5 per cent quicklime, showed no growth.

In Canton with a population stated to be 1,000,000, there were 180,000 deaths during the six months February to July last. The ordinary mortality is placed at 1,000 per month. So that 174,000 persons would seem to have died of the plague in that city during those six months. An official report places the number of deaths from plague in the city of Hong Kong up to 1st August, at 2,504, out of a population

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of 200,000. But as every Chinese man or woman when seized got over to the mainland if he or she possibly could, the actual number of deaths out of that population was probably much higher.

The average mortality of those attacked has been stated at from 80 to 90 per cent, but Yersin places it much higher, stating it to have been 95 per cent even in the hospitals.

Most of the cases occurred amongst the Chinese, but it was not exclusively confined to them. Prof. Aoyama, and one of his assistants were seized, but recovered. More fortunate in the latter respect than a Japanese doctor practising in Hong-Kong, who took it and died. Or than that other martyr to science, in another field, Prof. Oertel of the Hygienic Institute of Hamburg who died on the 22nd of last month from Asiatic cholera, resulting from an experiment with infected water taken from the river Vistula. Of the three hundred volunteers from the 1st Shropshire Light Infantry engaged in house cleansing and disinfecting work in Hong-Kong, Captain G. C. Veasey, Sergeant Humphreys and four privates, and one man of the Royal Artillery were attacked by the plague. Captain Veasey died of the disease, as did also an English Marine Engineer named George Dalton.

No case of plague has entered Canada this season. How much this has been owing to the orders issued by you for the steam sterilization of the clothing of all Chinese passengers arriving at the British Columbian quarantines it is of course impossible to establish.

The disease has now abated. The Port of Hong-Kong is stated to have been declared free of infection on the third of last month.

The published accounts of this outbreak prove that this disease is infectious. Yet from the relatively small proportion of Europeans attacked—even amongst the sanitary workers and hospital attendants—its infectious nature would seem to be dependent, in great measure at least, upon local conditions and personal predisposition. It seems to be a disease of poverty and of the insanitary evils which poverty begets, overcrowding, want of ventilation, personal uncleanness, improper and insufficient diet, &c. It is of the very type of the infectious diseases: a filth disease caused by a bacillus. And herein lies the practical interest of this country in the Chinese outbreak. It is satisfactory to know that, so far at least, the plague bacillus is not known to form spores, as the vitality of the vegetative form of micro-organism is much more easily destroyed than that of the spore. And that it perishes on exposure to a temperature that can readily be attained with the steam disinfecting appliances of the Canadian quarantine stations. But we have still much to learn as to the life history of this micro-organism, and notably with regard to its resistance to drying, its capability of being conveyed alive in merchandise—especially in such things as the straw matting, embroideries, and every sort of textile fabric, such as are manufactured in the little native workshops, with perhaps a case of plague in the same room,—in rags, &c.; and its power of resistance to fumigation, or such other methods of disinfection as may be used in places and with articles where steam cannot be employed.

Small-pox.—There has been a considerable amount of small-pox in Europe this year, with special outbreaks in Rotterdam, Paris, London and Dublin.

This disease was brought to the St. Lawrence quarantine in May last, but was arrested and stamped out there.

A very marked outbreak of small-pox has been prevailing in the United States. By the middle of April last, it was reported to be present in sixteen of the States, and to a very marked degree in some centres, such as New York, Brooklyn and Chicago. Between January 1st and May 31st, 1894, there were 1,739 cases of small-pox in Chicago, with 501 deaths; January, 128 cases; February, 233; March, 305; April, 544; May, 529. Under such circumstances, it became my duty to submit for your consideration the expediency of providing for a service of medical inspection and vaccination along the frontier at the unorganized inland quarantine stations.

There is still a considerable amount of small-pox in the United States. It is not improbable that it may again assume epidemic proportions this coming winter. For with small-pox, unlike cholera, winter is the period of its greatest season of activity.

Quarantine Regulations.—The system of medical inspection of incoming vessels, with isolation and disinfection when disease has occurred, has in your quarantine regulations been made general for all Canadian ports, and brought fully up to modern scientific conclusions. In England the last trace of their "quarantine" vote has this year been abandoned. It has lately only applied to plague and yellow fever. The obsolete time detention having been entirely replaced by port medical inspection. It seems almost a pity to retain even the word "quarantine." It is founded on an idea which science has outgrown. Its retention has caused modern methods to inherit undeservedly the objections urged rightly against the old. The key of the old system was prolonged detention. That of the modern system is prompt disinfection. This, however, is becoming so generally known that the retention of the old name as a matter of convenience is yearly becoming less and less liable to lead to misunderstanding.

Preventive Inoculations Against Cholera.—Amongst the newest and most important developments of preventive medicine is to be hailed the extension of immunization against various infectious diseases by the inoculation with the causative micro-organisms themselves, or with the chemical products of their life processes, or with the blood-serum of animals that are naturally, or that have been rendered artificially, immune to the disease. As to Asiatic cholera, Klemperer and Haffkine have been the principal investigators in this direction. The result is still subjudice. Haffkine has at least established the harmlessness of his method, by careful observations on himself and other medical men. He has inoculated many thousands of persons in India. The results where they have seemed to be tested are as yet somewhat conflicting. Thus in a localized outbreak in a hamlet near Calcutta, where Haffkine inoculated 116 persons out of the 200 exposed inhabitants, the only ten cases which occurred were amongst the non-inoculated persons, and none of the inoculated suffered.

Surgeon-Major Macrae of the Indian medical service, has reported in the *British Medical Journal* an account of the results obtained from Haffkine's method of cholera vaccination in the Gaya jail during an outbreak of that disease in July last. Owing to the fact that not all the prisoners in the jail when cholera made its appearance volunteered to be inoculated, there were two contrasted groups of persons representing various ages and both sexes, living under the same conditions, and differing only in the circumstance that some were subjected to the inoculation and others were not. Out of the 433 present in the jail, 215 were inoculated. Dr. Macrae's conclusions from the results were that for the first few days the inoculations have scarcely any protective influence; then their effect seems gradually to increase. (M. Haffkine in his publications has laid stress on the fact that he anticipated a period of ten days would elapse from the date of first inoculation before the full effect would be obtained.) That after the first few days their temporary beneficial effect is undoubted, although the facts are not of such a nature as to afford any information as to the length of time for which the immunity is likely to endure.

A despatch to the *London Times* from Calcutta, dated the 11th of last month says that during the recent cholera epidemic at Lucknow, several soldiers who were inoculated with Haffkine's virus were attacked, and that the proportion of mortality amongst them was the same as amongst the ordinary patients. Whilst again Dr. Simpson, medical officer of health of Calcutta has since that submitted a further memorandum to the municipality. In this he details the experience gained during the last three months in Calcutta, as well as the observations made during recent epidemics at Cawnpore and Dinapore. Dr. Simpson, according to a telegram from the *Times* correspondent, states that this recent experience has afforded strong additional evidence of the protective value of Haffkine's system of preventive inoculation. He discusses the recent occurrences at Lucknow and arrives at the conclusion that the failure of the method there has been greatly exaggerated, and that the results of that outbreak only teach the necessity of using virus of a higher power, and of having a special laboratory for its preparation, a condition which does not exist there.

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Another point which requires further study in this matter is the duration of the protection induced in the individual. In the observations quoted by Dr. Simpson, only a few days elapsed between the vaccination and the outbreak of cholera. The test was, therefore, hardly rigorous enough.

Haffkine inoculated guinea pigs subcutaneously with small doses of his *virus fort*—a peritoneal exudation containing cholera vibrios intensified by transference through a succession of 20 to 30 guinea pigs—a second injection is practised a few days after the first. And thereafter, if the animal be within a few further days inoculated intra-peritoneally with doses of the *virus fort*—which infallibly kills normal guinea pigs within about 12 hours,—it is found that the animal remains alive. These are very briefly in the main the principal experiments on which Haffkine bases his anti-cholera vaccination.

But Dr. Klein, in a paper on "The Antagonisms of Microbes," published in the Report of the Local Government Board, London, recently issued, concludes from his own experiments that the view of Haffkine and his followers "as to the specific choleraic nature of the disease induced in the guinea pig by the intra-peritoneal injection of the cholera bacillus is absolutely untenable." He claims that the disease set up in the guinea pig is acute intense peritonitis, a local inflammation, and not Cholera Asiatica; that exactly the same disease is produced by the same methods by several other enumerated bacterial species. And since neither the bacillus prodigiosus, nor the vibrio of Finkler, nor the staphylococcus aureus, can be said to produce cholera in the guinea pig, the identical condition produced by the vibrio of cholera is not to be regarded as the equivalent of Cholera Asiatica.

Moreover, Haffkine's micro-organisms were grown on the surface of solid agar-agar, scraped off this, distributed in sterile broth, and injected either in the living condition or after having been sterilized. And Klein draws attention to the fact that in all these experiments the bacteria themselves *minus* the chemical products elaborated by them in the nutritive media (their ptomaines, toxins, albumoses, etc.,) were used for the injection. And so only the intracellular poison employed. Klein insists upon the fundamental distinction between the intracellular poison, and the toxins produced by the microbes in artificial cultures or in the animal body. He questions whether, by rendering a given animal tolerant of the intracellular poison of a particular microbe, this animal is at the same time rendered also tolerant of the chemical products (toxins, albumoses, etc.,) which such microbe is apt to produce in culture media or from the tissues of its host. Indeed he has by direct experimental evidence convinced himself of the fact that a guinea pig rendered tolerant of by the intraperitoneal injection of intracellular cholera poison by antecedent repeated subcutaneous injections of the intracellular cholera poison is still susceptible to, and succumbs after, injection into it of the toxins that had been produced by this microbe in gelatine culture. And as Haffkine uses for his protective inoculations the intra-cellular poison only, such a protection would hold good only against a certain quantity of dose of the intracellular poison. It by no means follows then, according to Klein, that such a protection necessarily includes power to inhibit multiplication of the cholera vibrio within the intestines of the human body.

Anti-toxin Treatment and Prevention of Diphtheria.—Serum-therapeutics has been the order of the day since Behring and Kitasato showed the power of the serum from immunised animals against tetanus and diphtheria. In a series of publications Behring, with the help of Verniche, Boer, Kossel, and Knorr, has explained how he immunized animals, how their serum acted on the toxins, and showed its preventive and therapeutic powers on guinea pigs and rabbits poisoned with the diphtheria toxin, or infected with the living bacillus. Later Behring and Ehrlich, with the co-operation of Boer, Kossel and Wassermann, have given the first results of serum-therapeutics applied to human beings. And Viquerat, following the experiments of other investigators with the serum of the dog and the goat, now claims to cure tuberculosis by the serum of asses or mules, animals which are immune to that disease.

A communication of much interest on this subject of serum-therapeutics was made to the Buda-Pesth International Health Congress last month by M. E. Roux,

chef de service à l'Institut Pasteur. Diphtheria is a disease well suited to antitoxin treatment. It is a toxic disease, but the poisoning of the system follows the throat trouble. Before the toxin produced by the diphtheria bacillus has done its work, we are warned by the false membrane. It is because diphtheria is at first a local affection, having its birth before our eyes, that it is well adapted to antitoxin treatment.

Roux, like Behring, Ehrlich and Aronson found that of all animals able to furnish large quantities of anti-diphtheritic serum the horse is the easiest to vaccinate. Horses are rendered immune by the subcutaneous inoculations of living and virulent diphtheria bacilli, or of diphtheritic toxin, in progressively increasing amounts. The temperature is raised for a day or two without apparently affecting the health of the animal. After numerous successful experiments on rabbits and guinea pigs, Roux began on the 1st February last to treat cases of diphtheria in l'Hopital des Enfants Malades at Paris. Several horses were previously thoroughly immunized so that the serum could be employed without stint. No selection of cases was made, and the local treatment remained the same, the serum was the only new element introduced. The total mortality in the diphtheria wards during the last four years averaged 51·71 per cent. From February 1st to July 24th, 1894, the treatment by serum was employed in 448 children admitted to the hospital, of whom 110 died, or 24·5 per cent. The conditions having remained the same, the difference between 51·71 and 24·5 per cent is the measure of the benefit produced. During these same months of February, March, April, May and June, 1894, there were admitted to the Tousseau hospital in Paris, 520 cases of diphtheria. These were not treated by serum. 316 of them died, being a mortality of 60 per cent. So it does not seem as if the epidemic, during which Roux's experiments were made, had been a mild one.

Baginsky and Katz report from the Kaiser and Kaiserin Friedrich Hospital in Berlin, that, from March 14th to July 25th, 1894, 163 cases of diphtheria were treated with the Aronson anti-toxin serum. Of this number only 23 died, a mortality of 14·37 per cent. Previous records of 1,081 cases showed a mortality of 38·9 per cent.

But from the standpoint of preventive medicine the most important consideration is in connection with the following facts. At the Hopital des Enfants Malades to each child was given systematically on admission a single injection under the skin of the flank. If the bacteriological examination showed that the disease was not diphtheria the injection was not repeated. Now 128 children suffering from sore throats, other than diphtheritic, were thus treated. They remained several days exposed to the contagion without being infected. A strong evidence of the prophylactic or protective value of the serum.

And quite lately Katz has inoculated 72 children who had been exposed to the disease. Of these only eight were attacked, and they so slightly as to be free from any evil consequences.

The Hermite Process of Electrical Sanitation.—This system of sanitation has made considerable advance within the last twelve months. First brought before the public last year at the Havre Health Exhibition, it is already known far and wide. For disinfection by this process salt water or seawater is employed, the composition of which has been partially altered by the action of electricity. This electrolysed seawater contains, probably as its chief active constituent, hypochlorous acid, a powerful deodorizer and bleaching liquid, and, according to the experiments of Dr. Mark Armand Ruffer, of the British Institute of Preventive Medicine, with the excreta of a typhus fever patient at Lorient, a true disinfectant or germicide as well. These properties are probably due to the united action of nascent oxygen and chlorine. This Hermite process has been conducted on an experimental scale at Worthing, England, during the early months of this year. The *Lancet*, commenting on it, points out as an objection to this treatment for sewage that the contents of the sewers rapidly appropriate the chlorine strength of the liquid, and that the same observation applies to soap and domestic waste which rapidly "kill" oxygenated chlorine compounds, and refers to the expense for inland towns, since it would be necessary either to carry seawater or prepare it artificially. At the Boulogne-sur-Mer Health Exhibition this year M. Hermite showed, for the first

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time, a small automatic apparatus for the making of his disinfecting fluid, which is designed for ships, hospitals, hotels, factories, country houses, town mansions, etc., wherever the electric light is employed. An automatic apparatus sufficient for a fair sized hotel is stated to be not bigger than a coal scuttle. Placed at the top of a building it keeps the cistern, serving to flush the drains, constantly full of the electrolysed salt water. To instal it is not more difficult than to put up an additional electric lamp, since it has only to be placed in connection with the electric current by two small wires. The cost of this automatic apparatus is said not to be excessive, and the expense of the electric current cannot be anything but small.

For seagoing passenger vessels, and especially those bringing immigrants, such a system of sanitation seems to me specially applicable. On board such vessels large quantities of expensive and often malodorous disinfectants are in frequent use, and nevertheless strong, disagreeable and unhealthy odours only too often prevail.

The use of such an automatic apparatus for the electrolysing of seawater to be used for the flushing of latrines, the drenching of ships' hospitals and steerages, the flooding of decks and alleyways, etc., would constitute not only a great advantage for the health of the passengers and crew, but would at the same time probably be a considerable saving of money.

The *Lancet's* objections would not apply on shipboard. There is no connection with any sewer the contents of which might "kill" the disinfectant, the seawater required would of course cost nothing, and the expense of the electric current employed would not be appreciable.

International Sanitary Conference of Paris, 1894.—This ninth international sanitary conference met in Paris on 7th February, 1894, and was attended by representatives from sixteen states, viz.: all the powers of Europe except Switzerland, Persia, the United States, Egypt, the British Possessions in India, and the Straits Settlements of the Netherlands.

The results of its work are to prove far more important than those of any of its predecessors. While other conferences have considered questions more immediately relating to cholera in Western Asia and Eastern Europe, this conference grappled with the more difficult subject of preventing the transportation of the cholera infection from India by the pilgrims to Mecca.

The following extracts are quoted from a paper by Dr. Stephen Smith,—one of the three United States delegates—read before the New York Medical Association on the 10th of this month, and published in the *Medical Record* of the 13th instant.

The first step towards international action in regard to public sanitation and maritime quarantine was taken in 1847, by the French Government, which has always been foremost among the nations of Europe in advancing sanitary science. Preliminary to the calling of an International Sanitary Conference they appointed medical sanitary agents in the east. The posts of observation thus created were at Constantinople, Smyrna, Beirut, Alexandria, Cairo, and Damascus. The information in regard to sanitary conditions in those cities derived from these sources formed the basis for the conference of Paris, which was convened on invitation from the French Government in 1851. Twelve powers were represented by delegates at this conference. The results obtained were, a relaxation of the rigour of quarantine in Mediterranean ports, and a scheme of rational maritime prophylaxis.

Nine International Sanitary Conferences have since been called, and six have been held. The earlier conferences were not fruitful of immediate results. The field of labour was new and unexplored, and diplomatic questions arose which greatly interfered with that harmony of action of states essential to success. Mutual confidence was in a measure established, which led to far more effective work in future conferences. This was apparent in the conference of Venice, the seventh in the series, held in 1892, which was called to consider the means of preventing direct communication between Europe and the infected regions of India, by way of Egypt and the Mediterranean ports. The conference succeeded, first, in regulating the duration and method of quarantine in the Suez Canal; second, in preventing the passage through the canal of infected vessels; third, in requiring disinfection of suspected

vessels; fourth, in creating the Council of Alexandria with a preponderance of European influence.

Still greater progress was made toward the creation of international laws by the Eighth Sanitary Conference, which met at Dresden, March, 1893. The programme proposed for consideration the following subjects:—1. The duty of the Government when cholera is reported within its territory. 2. The measures to be taken when cholera exists in a neighbouring country. The conference decided that the declaration of the presence of contagious diseases is obligatory and that every means should be taken to prevent its spread. It formulated a system of sanitary measures which afforded a maximum of protection for public health with a minimum of obstruction to travel and traffic; it fixed the period of detention and isolation; it defined the distinction between medical surveillance and observation; and finally it permitted a person arriving from an infected port to proceed to his destination, but it maintained a rigid observation of him during the period of incubation of the cholera germ.

These two conferences proved conclusively that international agreements could be made designed to prevent an invasion of Europe by cholera, which though placing severe restrictions upon commerce and travel, were not incompatible with the laws and customs of the contracting powers.

Modern science has proved conclusively that the germs of this plague have never left their native soil, except when they were conveyed by human agency. It became therefore, a well established fact that the transmission of the cholera infection from India to Europe was, in its first stage, through the pilgrimages of the Mussulmans from India to Mecca, and other places of resort. At these places it was transferred to the European pilgrims who conveyed it to Europe. It was evident that the international rules and laws enacted did not meet existing conditions. As a matter of fact, cholera appeared at Mecca eight times between 1871 and 1893. The European states therefore, could not be certainly protected when the cholera infection was brought without hindrance to Mecca, and the European pilgrim was allowed to visit Mecca and return without any proper sanitary surveillance.

Such considerations as these induced the French Government, always alert in its efforts to provide adequate measures for the prevention of cholera epidemics, to issue a call for another conference, the ninth in the series, and the fourth called by the Government of France. The object of this conference was to provide measures for preventing, by international agreement, the transmission of cholera from its native habitat by pilgrims. The task was the greatest and most important ever undertaken by any state or combination of states.

A wide divergence of views, in regard to the best method of treating an epidemic of cholera very early appeared among the technical delegates, and became very pronounced in the discussion of many questions throughout the entire session. These different opinions were as follow:—

1. The French delegates held that the cholera infection should not be allowed to be conveyed from place to place, either by travellers and their effects or by articles of commerce, hence they approved of enforcing such sanitary rules as would free the traveller and his baggage, as well as articles of commerce, of the contagion of cholera at any place in their transit when they were discovered or suspected to exist. This policy was sustained by every delegation, except that representing Great Britain and its dependencies.

2. The British delegation held that the proper method of dealing with cholera is to perfect the sanitary conditions of cities, villages and the homes of the people, and allow the contagion of the pestilence free course along the routes of travel, whether by sea or land. All barriers to the entrance of cholera into any state were condemned, especially any form of quarantine which delayed the progress of vessels into ports and the immediate discharge of cargo. This public policy was supported only by the delegation from Great Britain.

3. The delegate who represented the British possessions in India held that cholera is due to epidemic influences quite beyond human control; hence he advocated non-interference. This policy was supported only by the delegate who represented India.

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For nearly two months the conference devoted itself assiduously to its duties.

The code of sanitary rules governing the migration of large bodies of people from or through districts infested with cholera which the conference finally completed and adopted, is based upon the most advanced principles of sanitary science. When this code is finally accepted by the powers of Europe and Asia and by the United States, and then becomes in effect international law, it will mark the commencement of an era which will be characterized by the extermination of those roving pestilences which have heretofore been the scourge of the human race.

One feature of the conference remains to be noticed, which is of special interest to the people of America. As this conference was called to devise international measures to prevent the transportation of cholera by the migration of large bodies of people, it seemed to the delegates from the United States, or at least to a majority of them, that it would be a fitting occasion to consider also the closely allied subject of the conveyance of cholera from Europe to the United States by emigrants. It was apparent that the sanitary rules and regulations relating to travel and traffic which would prevent the transmission of the cholera infection from India to Europe by the pilgrim, would, if properly applied, prevent the transmission of cholera from Europe to America by the emigrant.

Actuated by these considerations the delegation brought the matter before the conference at its third session in a formal paper. It was shown in this statement that cholera has as yet never reached the United States from Europe except through the emigrant classes. The imminent danger of an invasion of the United States by cholera, when it is prevalent in Europe, will appear when we consider :

1. The vast numbers of immigrants who land on our shores annually. In 1893 357,857 emigrants from Europe arrived at the single port of New York. In some years the number has been quite half a million.

2. These immigrants are, for the most part, the poorest, filthiest and most insanitary class of the population of the states of Europe. They are not only extremely filthy in their persons and habits, but they bring large quantities of filthy baggage and household goods, which are admirably adapted to preserve the germs of contagious and infectious diseases in all their potency.

3. The rapidity with which the transit of the ocean is now made by the great passenger vessels—and it is in this class of steamers that the bulk of the immigrants reach the port of New York—renders it possible now for an emigrant to receive the cholera into his system in Europe and be safely domiciled in New York city before the period of incubation has fairly expired.

To meet these exigencies, the United States has but one remedy, and that is a rigorous quarantine. Such sanitation of cities, villages, and the homes of the people as might make it safe to allow the cholera contagium free access to our ports is impossible. The opinion was expressed that if, by an international agreement, such sanitary regulations could be enforced as would secure to the emigrant from Europe to America cleanliness of person and baggage, adequate means for his care during the voyage, and a reasonable guarantee that he is not the carrier of the cholera germ, would be followed by greatly diminished restrictions, which our Government must otherwise impose upon travel and commerce in our ports.

The communication of the delegates concluded by requesting that the programme of the conference be so enlarged as to include the preparation of international sanitary rules governing the emigration of the labouring classes of Europe to America.

At a subsequent session the United States delegates submitted more in detail, at the request of the conference, the questions for consideration. The several propositions were nearly those already under discussion in regard to the pilgrims, viz. :—

1. Measures to be adopted to enable the emigrants to come to the port of departure free from contagious diseases. Each emigrant should obtain from the local authority a passport or certificate showing the sanitary condition of the place from which he came, the route that he has followed to the port of departure, and, as far as possible, the state of his health during the journey. The passport for the pilgrim made nearly the same provision.

2. Measures to be taken at the port of departure to prevent the germs of cholera being taken on board of vessels, either by the emigrants personally, or by their clothing or other effects. These measures would correspond with those adopted by the conference with reference to pilgrims at the port of departure, viz. : detention for several days in reception quarters where bathing and disinfection could be thoroughly performed and any infection present destroyed.

3. Measures to be taken to secure the best sanitary condition of vessels carrying emigrants before their embarkation, in order that the health of the emigrants may be preserved during the voyage. The excellent sanitary regulations which the conference adopted for pilgrim ships would apply with some modifications to emigrant ships.

4. Measures to be taken during the voyage both to preserve the best sanitary condition of the ships, and of the emigrants and equipage, and to promptly suppress any focus of infection which might develop on board. These provisions were amply made by the conference with regard to pilgrim ships during the voyage.

5. Measures to be taken at the port of arrival which would comprise such changes in the regulations of our quarantines as would adapt them to the new conditions which these international regulations would secure as to the liability of emigrants to be the carriers of cholera infection.

The communication of the American delegates was received with marked attention by the members of the conference. It was conceded that there was such a close analogy between the methods of conveyance of cholera infection from India to Europe by the pilgrims, and from Europe to America by the emigrants, that the international sanitary regulations governing the migration of one class would be nearly applicable to the other. The delegates of several States cordially adopted the views of the American delegates, and were disposed at once to consult their respective governments to obtain the power to enlarge the programme in accordance with our request. Others, while acknowledging the great importance of the subject, were of the opinion that, as the present conference was called for a specific purpose, it should not add to its duties another obligation, however closely allied it might be to the one in hand. They proposed that the emigrant question be deferred to another conference called for that special purpose. The British delegation opposed enlarging the subjects for discussion at the present conference, and also to the calling of another conference to consider the emigrant question, basing their objections upon their often-reiterated opinions that the prevention of the spread of cholera should not be attempted by restriction upon travel and commerce, but that every State should secure to its people homes so healthy that they would defy the potency of the cholera germ. It should be stated that at one of the sessions of the present conference, on the occasion of the statement of the above opinion by the distinguished medical officer of the local government board of England, the technical or medical delegate of Greece replied that his government had no such power as would secure that degree of sanitation of the homes of the people of which the English boast, and it must, therefore, rely upon a rigorous quarantine against cholera. As to the value of home sanitation compared with a rigorous quarantine in the protection of the people against cholera, he reminded the British delegation that during the last year there were several outbreaks of cholera in England, with a number of deaths, while for forty years there had not been an outbreak of cholera in Greece, though the pestilence had many times prevailed in surrounding countries.

After considerable discussion the conference decided not to change its programme, but with much unanimity concurred in the opinion that another conference should be called, if requested by the government of the United States, to formulate international sanitary regulations governing the migration of European populations to America.

To one who has practically studied the problem of the prevention and suppression of such world-wide epidemics as Asiatic cholera, the importance to the people of the United States of the co-operation of the governments of Europe with our government in freeing the emigrant from the germs of contagious and infectious diseases before he embarks for our ports, cannot be overestimated. The proposed scheme of sanitary

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surveillance of the emigrant would begin at his domicile abroad and follow him every step of the way to his home in this country. His passport issued by the local European health officer, and viewed at every point in his progress, would not only contain a record of his condition as regards his freedom from infection and his health, but it would be his only guarantee that he could travel at all on railways to the port of departure or that he could embark on any steamship bound for a port in the United States. It is at once apparent that such an international agreement would bring to our shores only healthy emigrants and in healthy ships. Two consequences would inevitably follow, viz.: 1. Cholera would never be brought to this country by the European emigrant; and 2. Our quarantine would consist only in a detention for the examination of the passports of emigrants and the inquiries and inspections necessary to determine that shipmasters had faithfully complied with the international sanitary regulations.

The fact that the considerations involved in this matter are of as vital interest to Canada as to the United States is my reason for quoting from this paper at such length.

Having cognizance of an earlier brief report of the Paris conference last spring, I had the honour in May last, to submit to your attention the fact that at this conference this emigrant question had been thus raised by the delegates from the United States. And respectfully to submit for your consideration whether—in view of the advance made and principle adopted by the conference—it would not be well to improve the opportunity thus offered, and to take such steps as might seem to you best to secure the calling of a conference of the European Powers with Canada and the United States to establish international regulations governing the movements of emigrants to America.

American Public Health Association, 1894.—The twenty-second annual meeting of this association was held in Montreal, beginning on the 25th of last month. I had the honour to attend it, by your instructions, as the representative of the Dominion Government. It was largely attended by delegates from the United States, Mexico and Canada. Many important papers on sanitary subjects were read and discussed.

At the close of the meeting an excursion took place to visit the St. Lawrence quarantines. Over 300 persons, principally delegates, were thus enabled to inspect the quarantines. I had previously, at an evening session of the meeting, explained the Canadian system of quarantine, and illustrated it by means of lantern slides, so that the delegates were enabled to more quickly and completely appreciate the different appliances and processes at the stations.

I am happy to be able to report that the general opinion as expressed to me was one of satisfaction. And this is a very important and practical matter. Until recently, as soon as an epidemic occurred in Europe there was a tendency amongst some of our neighbours in the United States to fear invasion of the disease by way of Canada, and at times very vexatious inspections and delays were imposed at the frontier, causing obstruction to travel and traffic.

This opportunity of showing to so many executive officers of the Federal and State Health organizations of the United States what our quarantine system really is, has been a most valuable one. It should be fruitful of good results by proving to them that we are protecting ourselves, and so protecting them, and that through passengers from Europe arriving *via* the St. Lawrence may be as safely and freely admitted to the western States as if they had arrived *via* New York or Boston. And the advantage of this to the Canadian transportation companies, steamship and railroad, can readily be realized.

An editorial on this subject in the *Toronto Mail* of the 6th instant says:—
“At the meeting held, after the station and substation at Quebec had been examined, every speaker expressed his entire approval of the work done and the methods adopted for the effectual protection of public health. It is a matter of the highest importance to the trade of the Dominion to establish confidence all over the western portion of the continent, that no immigrant is allowed to pass into or through any part of the Dominion who is likely to bring with him the germs of infection of any

of the dreaded infectious diseases, which have caused such serious loss of life wherever epidemics have broken out. The visit to Grosse Isle has given direct evidence of the care bestowed under government regulations to stamp out disease if it approaches by sea, and the personal observation of each visitor must have convinced him that the latest and most improved methods which can be adopted are unsparingly employed. This is no slight matter where enormous interests are involved in the daily intercourse of two great countries. Scarcely any meeting held on Canadian soil this year approaches in importance the meeting of the American Health Association. They came, they saw and they conquered all their prejudices, and returned to their distant homes perfectly satisfied that their interests are as carefully considered and guarded on the St. Lawrence route as they would be if the work were carried out under the most rigid state or federal laws."

And in a recent article in the *Montreal Gazette* occurs the following:—
"They" (the quarantines) "are now in a state of the utmost efficiency, and were declared by our recent visitors—the Health Association of the North American continent—a few days ago, to be at the very head, not only of the quarantine appliances of the continent, but of the world. That is a point on which both Mr. Angers and the government may fairly be congratulated."

I have the honour to be, sir,
Your obedient servant,

F. MONTIZAMBERT, M.D., Edin., F.R.C.S., D.C.L.
General Superintendent of Canadian Quarantines.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 2.

REPORT ON ST. LAWRENCE QUARANTINE STATION.

GROSSE ISLE.

(F. MONTIZAMBERT, M.D., EDIN., F.R.C.S., D.C.L.)

31st October, 1894.

SIR,—I have the honour to submit this my annual report on the St. Lawrence Quarantine Service, made up to this date as directed.

Infectious disease was reported by, or found upon board of, the following vessels arriving in the St. Lawrence, named in the order of their arrival:—ss. "Pickhuben," "Anvers," "Baumwall," "Oregon," "Numidian," "Polaria," "Parisian," "Mongolian," "Sarmatian" and "Mongolian."

The diseases so reported or discovered were small-pox, enteric fever, measles and diphtheria.

The admissions to the quarantine hospitals for this season to date number one hundred and six.

The deaths in hospital to date have been four, all from measles.

Small-pox was brought by the ss. "Oregon," Gibson, master, which sailed from Liverpool, 4th May, with fifteen cabin, ten intermediate and seventy-four steerage passengers, ten cattlemen and sixty-nine crew, and arrived at quarantine on 15th May. The disease was arrested and stamped out at the station.

Sub-stations at Quebec and Lévis.—The disinfection of the packed luggage of all immigrants arriving from countries or districts infected with Asiatic cholera has been scrupulously carried out throughout the season, in accordance with your instructions. The list of proclaimed countries has varied with the spread of cholera. It has included Constantinople, the whole of Russia, Poland, Belgium, Holland and Portugal, and portions of Germany, of Austro-Hungary, and of France. It is impossible to say to what extent the infection of cholera might have been disseminated through this country, had not the immigrant luggage from cholera-infected places been thus sterilized before being allowed to enter Canada.

Sub-station at Rimouski.—I visited this sub-station from time to time, coming up on these occasions on the mail steamers, and thoroughly inspecting them between Rimouski and Grosse Isle.

Visit of American Public Health Association.—This association, to the number of over three hundred, visited the St. Lawrence quarantines on the 29th September, subsequent to the annual meeting which was held in Montreal. The delegates expressed satisfaction with the appliances and system of the quarantines.

I have the honour to be, sir,
Your obedient servant,

F. MONTIZAMBERT, M.D. Edin., F.R.C.S., D.C.L.,

The Honourable
The Minister of Agriculture,
Ottawa.

No. 3.

REPORT OF THE HALIFAX (N.S.) QUARANTINE STATION.

(W. N. WICKWIRE, M.D.)

HALIFAX, N.S., 1st November, 1894.

SIR,—I have the honour to submit my report for the year ending 31st October, 1894.

The year has been comparatively uneventful from a quarantine point of view. We have not been required to remove any person to the quarantine station during the year. Some sickness among immigrants and others was found in steamers and other ships, but none of a character requiring quarantine isolation.

During the winter the mail and other steamers brought a large number of immigrants. Careful disinfection of the luggage and other effects of all persons from countries or neighbourhoods known to be more or less infected was carried out.

During the summer only a few immigrants have come this way, but disinfection was fully carried out in all cases where it was considered advisable in accordance with instructions from time to time received from your department and the General Superintendent of Canadian quarantines.

Considerable work has been done at the quarantine station during the year. After some small matters shall have been attended to, and the hospitals supplied with necessary bedding, furniture, &c., the station will be fairly complete; the deep water wharf is a well built and commodious structure, and the buildings are of sufficient capacity to accommodate any number of persons, sick or healthy, who under almost any circumstances are likely to require quarantine isolation at any one time. The new disinfecting apparatus is complete and works most satisfactorily. The means furnished for disinfecting and cleaning the ship itself when at the wharf are convenient, and will be efficient.

I may state that the usual inspection of all ships requiring this has been carefully carried out.

I have the honour to be, sir,

Your obedient servant,

W. N. WICKWIRE, M.D.,

Inspecting Physician.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 4.

REPORT OF THE ST. JOHN, N.B., QUARANTINE STATION.

(J. E. MARCH, M.D., W. S. HARDING, M. D.)

St. JOHN, N.B., 31st October, 1894.

SIR,—I have the honour to submit my report for the year ended 31st October, 1894.

During the year just closed, Dr. W. S. Harding, who served so long and so well as quarantine officer here, was retired on account of age, and on July 1st I assumed the duties of the office.

Dr. Harding's report on the work of the first eight months of the year is hereto appended and made a part of this report.

Through the courtesy of the collector of customs here, I have made a personal examination of the manifests of all vessels which arrived from ports outside of Canada during the year ending to-day. The results of this examination have been verified as far as possible by the agents of the various lines of steamships running here. I find that the average number of persons arriving at St. John daily by boat from ports outside of Canada is 206, the total number for the year being 74,096. These persons came on 1,267 vessels of all kinds, whose aggregate registered tonnage was 483,123 tons.

The returns show in a striking way the fact that the period of greatest danger corresponds with the period of greatest traffic. The months of June, July, August and September are credited with the great bulk of passenger arrivals, twenty-seven times more persons arriving in August than in January.

From 1st July to 31st October 56 vessels were inspected by me on the outer quarantine ground at Partridge Island.

These vessels were from ports south of Cape Hatteras or east of Newfoundland. I visited 176 other vessels.

Bark "Don Enrique" arrived in the night of June 30th. Captain Wright reported that he left Rio de Janeiro 14th May. On the 18th, John Bentley, able seaman, was taken ill, and on the 22nd he died and was buried at sea. From the captain's description of the case, I concluded the man had died of yellow fever. No other illness had occurred on board. The vessel was thoroughly cleansed and discharged from quarantine 2nd July.

On September 16th the Danish bark, "Aurorita," arrived from St. Nazaire, a cholera infected port, in a very dirty condition. She was detained, thoroughly cleansed, all clothing, bedding, &c., disinfected by steam, and discharged from quarantine 17th September.

These were the only vessels detained during the period covered by this report.

I have the honour to be, sir,
Your obedient servant,

J. E. MARCH, M.D.,
Inspecting Physician.

The Honourable
The Minister of Agriculture,
Ottawa.

ST. JOHN, N.B., 5th November, 1894.

SIR,—I have the honour to report the arrival of vessels at the port of St. John, and inspected by me at this station during six months of the year, 1894, ending 30th June, numbered 75.

No infectious sickness was found to exist on board of any one of such vessels.

I have the honour to be, sir,
Your obedient servant,

W. S. HARDING, M.R.C.S., Eng.
Late Inspecting Physician.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 5.

REPORT OF THE SYDNEY, N.S., QUARANTINE STATION.

(W. McK. McLEOD, M.D.)

SYDNEY, C.B., 31st October, 1894.

SIR,—I have the honour to forward my annual report on quarantine at this station for the year ending at this date.

Inspection was carefully performed, and so far, no vessel was found requiring detention. The arrivals at quarantine were,—transatlantic 54, cisatlantic 52, making a total of 106. The greater number of them were steamships, and all of them large in tonnage and of great draught of water. Cisatlantic arrivals here are principally from the Southern States, Mexico, the West Indies and Central and South America; while transatlantic arrivals are from the United Kingdom and French ports—from Hamburg, Antwerp, Rotterdam, &c., &c., with a large number from Spanish, Italian and other ports in the Mediterranean, and eastwards to the Levant, Black Sea, &c. Important as these arrivals doubtless are, as forming part of the transatlantic shipping with which we have to do at this station, that class comprises also a large and annually increasing number of vessels which demand especial vigilance, viz.:—those which come from points in the far east, the Phillipines, and ports on this side thereof. They come through the Suez canal and the Straits of Gibraltar. After leaving Sydney harbour, they proceed to their ports of discharge *via* the St. Lawrence, but they are then from a Canadian port and therefore outside of our quarantine regulations.

The careful manner in which Mr. Peters has kept me informed of approaching vessels requires mention. The value of the reports from his signal station at Low Point has been amply demonstrated. I am happy to state that no disease was found by me on any of the vessels inspected.

The buildings at Point Edward are in good condition as a whole, as are also the grounds.

I have the honour to be, sir,
Your obedient servant,

WM. McKENZIE McLEOD, M.D.,
Medical Superintendent, Quarantine, Sydney, C.B.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 6.

REPORT OF THE CHARLOTTETOWN (P.E.I.) QUARANTINE STATION.

(P. CONROY, M.D.)

CHARLOTTETOWN, P.E.I., 31st October, 1894.

SIR,—I have the honour to report as follows respecting quarantine matters at this station for the year ending the 31st October, 1894.

The total number of arrivals from foreign ports was 41, classified as follows:—

From across the sea	4
“ West Indies.....	6
“ United States.....	20
“ Newfoundland.....	11

All these vessels were carefully inspected and found to be free from any epidemic contagion.

I have the honour to be, sir,
Your obedient servant,

P. CONROY, M.D.
Inspecting Physician.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 7.

REPORT OF THE PICTOU (N.S.) QUARANTINE STATION.

(JOHN McMILLAN, M.D.)

QUARANTINE STATION, PICTOU, 31st October, 1894.

SIR,—I beg leave to report that there has not been any sickness at this station during the past year.

There were nineteen foreign ships inspected during the past season.

All the buildings at the station are in good repair, and ready for occupation at any hour. In my last annual report I recommended the building of a wharf, so that boats might land at any time. At present boats can only land at high tide.

I have the honour to be, sir,
Your obedient servant,

JOHN McMILLAN, M.D.,
Inspecting Physician.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 8.

REPORT OF THE PORT HAWKESBURY (N.S.) QUARANTINE STATION.

(P. A. MacDONALD, M.D.)

PORT HAWKESBURY, N.S., 31st October, 1894.

SIR,—I have the honour to submit this my annual report for 1894.

I am happy to be in a position to inform you that no cases of infectious or contagious disease were received at this station during the present year.

Eighty sailing vessels and steamers from foreign ports were inspected, but it was not found necessary to detain any of them in quarantine.

One line of steamers landed at this port 1,257 passengers from different parts of the United States.

All instructions and regulations from your department were carefully observed.

I have the honour to be, sir,

Your obedient servant,

P. A. MACDONALD, M.D.,

Inspecting Physician.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 9.

REPORT OF THE CHATHAM (N.B.) QUARANTINE STATION.

(J. MACDONALD, M.D.)

CHATHAM, N.B., 31st October, 1894.

SIR,—I have the honour to submit my annual report for 1894.

Since forwarding my last report on 31st October, 1893, 127 vessels have been inspected at this station.

I am happy to state that no contagious nor infectious disease was found on any of the vessels, and as soon as inspected they were admitted to pratique.

I have the honour to be, sir,

Your obedient servant,

J. MACDONALD,
Inspecting Physician.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 10.

(Translation.)

REPORT OF MATANE QUARANTINE SUB-STATION.

(J. B. PELLETIER, M.D.)

MATANE, P.Q., 31st October, 1894.

SIR,—I have the honour to report that during the past year only five vessels have required inspection at this port, all others that arrived here having been inspected elsewhere prior to entering this harbour. I am pleased to be able to state that I have found no contagious disease on any vessel inspected.

The reason of the decrease in the number of vessels arriving at the port of Matane was caused by the low water last spring, which prevented the rafting of logs and consequently affected the exportation of deals.

I am happy to state that from the active preparations this autumn for lumbering operations in this district, the port of Matane will in all probability next year see a larger number of vessels arriving in connection with this branch of industry.

The instructions received from your department have been carefully carried out by me during the past season.

I have the honour to be, sir,
Your obedient servant,

J. B. PELLETIER, M.D.,
Medical Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 11.

REPORT OF WILLIAM HEAD (B. C.) QUARANTINE STATION.

(W. McN. JONES, M. D.)

WILLIAM HEAD, B. C., 1st November, 1894.

SIR,—I have the honour to submit my annual report of this station to the 31st ultimo.

I am glad to be able to say that it has been a comparatively uneventful year as far as the station is concerned. There arose but two incidents which seem to call for comment.

1. On March the 13th the steamship "Empress of India," arrived with 350 passengers, 212 crew, eleven days out from Yokohama. I obtained from the captain and surgeon the usual affidavits as to the health of the ship; that the hospitals had never been used nor required, and that there had been practically no sickness on board; that on arrival at Yokohama, two of the steerage passengers had been found ill with what was considered mild small-pox, that these were at once landed; the ship and passengers were disinfected and after a delay of over 24 hours brought on. I carefully inspected the passengers and found them all vaccinated and apparently in a state of perfect health.

This would make twelve or thirteen days from the appearance of the disease on board.

There were no further developments. I allowed the vessel to proceed to Vancouver, where, after six or seven days, one mild case of small-pox showed itself while the passengers were being detained in bond for transmission to the United States, that is to say, eighteen to nineteen days after the appearance of the disease at Yokohama. The period of incubation for small-pox varies from five to twenty-six days. (I have had cases myself of between five to twenty-three days). Consequently there is no more charm in the reputed fourteen days, than there was in the old forty days of quarantine detention.

It has been said I should have detained them for the period of fourteen days from the time of the appearance of the last case. Where would have been the practical use? But setting aside this, I had to take into consideration the fact that my only resource would have been to have detained this large vessel with its valuable cargo, and five hundred and sixty-two souls on board for the futile reason that fourteen days exemption from the disease rendered further contagion impossible.

2. Early in June news arrived of the existence of an epidemic of bubonic plague at Hong Kong, and I at once issued orders to the pilots to bring all vessels from the Orient to William Head, where they could be inspected at a distance from Victoria and the luggage disinfected. My orders were carried out, and on the arrival of the first steamer from Hong Kong (the "Sikh," June 23rd), all the steerage luggage was disinfected by steam at 216° to over 220° of heat. But I soon found the precaution was unnecessary, as the Japanese authorities were even more particular than ourselves in that they allowed no passengers from China to land under ten days absence from Chinese port of departure, and even then disinfected all passengers and their baggage on landing.

I had also special manuscript reports sent by the health officer at Hong Kong, in addition to the ordinary printed ones; the captains and officers of the Orient lines took every precaution to prevent communication at Hong Kong, none but the most necessary officials being allowed to land, and no Chinese passengers being accepted.

I therefore discontinued the useless and vexatious delay incurred by diverting these vessels to William Head, from their usual course. The last vessel brought here was on July 27th.

The system of vaccinating at the ports of departure seems now to be thoroughly carried out by both the Canadian Pacific Railway and Northern Pacific Railway surgeons.

The Dioxide blast has been placed on the wharf.

The steamer "Earle" has been thoroughly overhauled and put into efficient condition for sailing and living purposes, the crew and myself sleeping on board when on duty at Victoria. I append the usual list of arrivals and coasters.

3. The city health officer of Victoria, and as far as I can gather the city authorities are desirous that Hong Kong should be regarded permanently as an "infected" port, because they say, the majority of the Chinese immigrants come from Canton or its neighbourhood and that this is the dirtiest city in China, where too, small-pox is endemic and therefore liable to be brought in luggage. They say that baggage from China should always be disinfected. But the same reason would apply to luggage from Japan, where small-pox is also largely epidemic, as also to all cargo. I do not think it would be possible to carry out this idea without an uncompensatory loss of trade.

Month.	British Steamers.	Foreign Steamers.	British Sails.	Foreign Sails.	Coasters.
1893.					
November.....	10	43	2	7	126
December.....	9	40	1	9	120
1894.					
January.....	9	44	1	4	58
February.....	8	40	4	5	89
March.....	5	41	2	9	97
April.....	8	62	2	4	105
May.....	8	75	10	9	117
June.....	6	91	5	4	111
July.....	11	101	1	3	114
August.....	4	99	5	7	121
September.....	11	91	28	1	126
October.....	8	90	21	4	136
Totals.....	97	816	82	66	1,320

I have the honour to be, sir,
Your obedient servant,

W. MACNAUGHTON JONES,
Superintendent of Quarantines, B.C.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 12.

REPORT OF NORTH SYDNEY QUARANTINE STATION.

(H. B. McPHERSON, M.D.)

NORTH SYDNEY, 31st October, 1894.

SIR,—I have the honour agreeably to your request to report, that for the year ending 31st October, I inspected, for quarantine purposes, 29 vessels; all of which were from foreign ports.

I am pleased to be able to state that there were no cases of infectious or contagious diseases in any of these vessels. All received pratique and were admitted to customs.

All regulations were carefully observed.

I have the honour to be, sir,
Your obedient servant,

H. B. McPHERSON, M.D.,
Inspecting Physician.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 13.

(Translation.)

REPORT OF RIMOUSKI QUARANTINE SUB-STATION.

(P. A. GAUVREAU, M.D.)

RIMOUSKI, QUE., 31st October, 1894.

SIR,—I have the honour to submit to you my report for the year 1894.

Twenty-nine mail steamers were boarded and inspected by me, three of which I sent to the Grosse Isle Quarantine, viz. :—1st. The steamer "Parisian," Captain Ritchie, on the 16th of June, having on board one second class passenger suffering from typhoid fever.

2nd. The steamer "Mongolian," Captain Barrett, on the 24th June, with a young girl 13 years old, a steerage passenger, suffering from violent fever and sore throat. Under the circumstances, I thought prudent to send the girl to Grosse Isle Quarantine, such action on my part having received the approbation of the superintendent.

3rd. The steamer "Mongolian," Captain Barrett, on the 6th of October, with one of the crew suffering from typhoid fever.

The application of the rules for disinfection of luggage coming from the various countries and districts infected with contagious diseases, necessitated the utmost care and attention in inspection, as there was a large number of immigrants arriving by the mail steamers: as an instance of which I may state that 112 Russian immigrants on board of the ss. "Vancouver," Captain Williams, arrived here on the 21st of September last.

The Signal Service is defective here. Several times last summer it happened that a steamer has not been announced till after its arrival at the wharf, and moreover in several cases, I found, after I had inspected a steamer, a telegram in my office announcing its arrival below here, at some lower part of the river.

I mention this fact to you to show how the responsibility of the delay of a steamer is apt to fall on the shoulders of the inspecting physician.

There were landed at Rimouski, during the season, besides the mails for Canada, China and Japan, 236 passengers, the greater part of them bound to the Maritime Provinces.

The whole respectfully submitted.

I have the honour to be, sir,
Your obedient servant,

P. A. GAUVREAU, M.D.,
Inspecting Physician.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 14.

REPORT OF THE LAZARETTO, TRACADIE, N.B.

(A. C. SMITH, M.D.)

TRACADIE, N.B., 31st October, 1894.

SIR,—I have the honour to submit for your consideration the following report on the leper hospital at Tracadie, for the twelve months ending on this date.

There are now twenty-one inmates of the lazaretto, twelve males and nine females. The ages of these patients are respectively as follows:—Eight, nine, thirteen, fourteen, fifteen (2), nineteen, twenty-three, thirty (2), thirty-one (2), thirty-four, thirty-five (2), forty-one, forty-three, fifty, fifty-three, fifty-eight and eighty-one. It will be seen that we have with us extreme youth and extreme old age. Classifying the patients for convenience sake, we have five in the first, ten in the second and six in the third or final stage. There was less than the usual amount of sickness, and there was not a single death during the year. The admissions also have fallen off considerably. The number, one only, is less than in preceding years. There is no very substantial cause to which this may be attributed, and it is probably merely incidental. Three cases remain at large, but will be gathered in on the completion of the new hospital now in course of construction. These cases I hold under observation, and I have taken measures to prevent them from engaging in the preparation of codfish, &c., or other public occupation.

The past year has been unattended with events other than those of a routine nature. The institution has retained its usual character in working out the designs of its organization. It is not only a place of detention for preventing the spread of infection, by reducing the number of foci of the disease, but is also a benefit to the pauper lepers by rendering their lives much happier. Their friends are relieved of a disgusting burden, and the community of a dangerous menace.

I am carefully watching the reported results of the special treatment of leprosy throughout the world, and find that no radical cure of the disease has yet been discovered, though, as with us, palliatives are used for meeting emergencies, allaying pain and mitigating suffering, thus making life more bearable. The new Japanese (Goto) treatment of lepers, which has been brought to the notice of the medical world, has been given a fair trial in the Hawaiian leper settlement, but with negative result.

The religious ladies, a band of noble women who act as nurses, and who are passing their days in this "cemetery of the living," content to do their duty without parading it before the world, are untiring in their efforts to ameliorate the condition of the unfortunate beings who are secluded from all that makes life enjoyable, and, as a result, the visitor from the happier world without finds them quietly resigned to their hopeless doom.

Leprosy is a disease, the bacillus of which has been identified. The consensus of opinion is now against the theory of hereditary transmission. The disease here, as elsewhere, attaches most to the people lowest in the scale of intelligence, and the comforts of life, and who live under conditions which favour contagion. Contrary conditions are attended with proportionate exemption from the disease.

As stated in a former report the lazaretto is not a prison, the lepers being allowed the largest amount of liberty practicable, and they seldom leave the grounds without permission.

The new lazaretto buildings, are being pushed to completion in so rapid and in so workmanship-like a manner, that they are a source of surprise and admiration to all visitors as well as to those especially interested. They will be ready for occupancy next fall.

No new cases of leprosy have appeared during the year. The hygienic conditions of our French population have improved during late years, and as a consequence the disease is diminishing. When the inmates of the lazaretto who are in the second and third stages shall have passed away, the number will be considerably reduced.

Leprosy in Cape Breton does not at present demand the special attention of the department.

I have the honour to be, sir,
Your most obedient servant,

A. C. SMITH, M.D., &c.,

Inspector of Leprosy and Medical Adviser to the Tracadie Lazaretto.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 15.

REPORT OF VICTORIA (B.C.) QUARANTINE STATION.

(G. H. DUNCAN, M.D.)

VICTORIA, B.C., 20th November, 1894.

SIR,—In laying before you my first annual report since my appointment as Dominion quarantine officer for the port of Victoria, allow me to state at the beginning my regret that through my absence in Japan and China, your letter of 12th October last asking for the transmission to this report up to 31st of October at as early a date as possible, only reached me to-day, and I hasten to comply with the request therein contained.

I would also thank you for your kind consideration in accepting my brother as my substitute during my absence. I may say that my departure to the Orient was so hurried that I had not time to communicate my intentions to any one except Dr. Jones, Superintendent of Quarantines for British Columbia.

My eastern visit extended to Hong Kong, the terminal port in China for the Canadian Pacific railway and Northern Pacific steamships, and embraced all ports of call on the line of these steamers, thus giving me an excellent opportunity to become practically acquainted with the homes, customs and habits of those immigrants who form the largest number entering our Dominion by its western gate. The knowledge thus gained will be of great value to me as a quarantine officer.

As you are aware my duty extends only to the United States steamers from Puget Sound ports. These consist of a daily service maintained by the "City of Kingston," Mondays excepted, running from Tacoma to Victoria, calling at Seattle, Port Townsend, the "Roselie" leaving Seattle and calling at Port Townsend, and a tri-weekly service between Port Angeles and this port by the steamer "Evangel." Besides, there are occasional passenger steamers during the summer months doing duty for excursionists.

The returns forwarded monthly to your department will indicate the number of passengers travelling between the Sound ports and Victoria, the average being about 1,000 persons per month.

I am happy to state that although a large percentage of those passengers was composed of the floating population of the communicating ports, there has been discovered no infectious or contagious disease among them during the year ending 31st October, 1894, and hence there was not any vessel placed in quarantine during that time.

I have the honour to be, sir,

Your obedient servant,

G. H. DUNCAN, M.D.,

Inspecting Physician.

The Honourable
The Minister of Agriculture,
Ottawa.

CATTLE QUARANTINE

No. 1.

REPORT OF THE CATTLE QUARANTINES IN QUEBEC AND THE MARITIME PROVINCES.

(PROFESSOR D. McEACHRAN, F.R.C.V.S., V.S., Edin. D.V.S., McGill, Chief Inspector.)

MONTREAL, 31st October, 1894.

SIR,—I have much pleasure in transmitting to you my annual report covering also the reports of local inspectors for Quebec, the Maritime Provinces and North-west Territories, and in being able to report the continued freedom of the entire Dominion from contagious pleuro-pneumonia in cattle, and the existence to a limited extent only of tuberculosis. As will be seen from the subjoined reports, the remarkable healthiness of the live stock of the country has called for very few investigations of disease, and in no instance was there any outbreak of disease of a contagious nature necessitating the enforcement of quarantine regulations, except sheep-scab in the North-west Territories.

EXPORTATION OF LIVE STOCK.

The exportation of cattle, as will be seen by the following statistics, up to the 31st October ultimo, has slightly increased over last year, while the numbers of sheep exported have increased enormously.

EXPORTATION FOR FIVE YEARS.

	Cattle.	Sheep.
1890.....	122,182	43,780
1891.....	108,947	32,157
1892.....	98,755	15,932
*1893.....	80,895	1,781
*1894.....	82,217	121,304

*Exportations from 1st November to 1st November.

Of these not a single animal showed any signs in the least degree suspicious of contagious disease, and up to this date, 31st October, only 80 cattle and 17 sheep were detained or rejected by the inspectors.

ANIMALS REJECTED AT INSPECTION.

Cattle.

Actinomycosis (lumpy jaw).....	59
Tuberculosis.....	2
Mange.....	1
Lame and injured.....	16
Too old and in poor condition.....	2

Sheep.

Lame and injured.....	17
-----------------------	----

When we consider that these animals were collected from all parts of Quebec, Ontario, Manitoba and the North-west Territories, the fact of no lung disease being discovered is substantial evidence of the freedom from lung disease of Canadian herds.

The port inspections were performed in a satisfactory manner by Professor M. C. Baker, at the Canadian Pacific railway stock yards, and Professor Charles McEachran at the Grand Trunk yards.

Department of Agriculture.

All cattle for exportation being detained for twelve hours of daylight so as to give the inspectors ample opportunity to make careful inspections.

There have been 834 cattle shipped to St. Malo, France. They proved profitable and take well in France. The high rate of insurance charged militates against them, however.

The shipments to Antwerp consisted of 2,761 cattle, which proved profitable to the shipper.

Both trades will, in all probability, be continued and increased next season.

IMPORTATIONS OF LIVE STOCK.

The following schedule will show the importations during the year :—

Quebec Quarantine.	{	Cattle.....	17
		Sheep.....	299
		Swine.....	22
Halifax Quarantine.	{	Cattle.....	9
		Sheep.....	2
St. John, N. B.		Cattle.....	2

Destined as follows:

	Nova Scotia.	N. B.	Quebec.	Ontario.	Manitoba.	U. S.
Cattle		2	6	20	.....	.....
Sheep	2	2	33	151	3	110
Swine .....		.....	.....	22	.....	.....

I have pleasure in reporting that all the animals imported through these quarantines were discharged free from disease.

The quarantine has been most rigidly enforced, cattle detained three months, and sheep fifteen days, under daily observation by the inspector.

I have much pleasure in reporting that the duties of inspectors were satisfactorily performed by Inspector J. A. Couture, D.V.S., at Quebec, Wm. Jakeman, D.V.S., at Halifax, and J. H. Frink, V.S., at St. John, New Brunswick.

CATTLE DISEASE.

Pictou Cattle Disease.

By reference to the appendices, reports on the quarantine operations for this disease by inspectors George Townsend, New Glasgow, and T. Chalmers, Truro, N.S., it will be seen that there is a slight decrease as compared with last year, 105 against 125 in 1893.

I have pleasure in reporting the discovery by Prof. Adami, of the special microbe of this disease, which will be found described in detail in his report herewith appended.

Tuberculosis.

I regret to have to report that this disease continues to appear to be increasing among our herds, judging from the frequent reports and correspondence on the subject. I have pleasure in stating, however, that the percentage of affected herds in Canada is perhaps lower than in any other country, as is seen by the small number of cases met with during the examination of hundreds of lungs at the abattoirs and boucheries.

It is as yet quite within the lines of possible extermination for a comparatively small outlay for inspectors, tuberculin and indemnity. I would strongly suggest that parliament be asked to vote the money necessary to rid Canada of this plague, worse by far than even contagious pleuro-pneumonia.

I beg to report that all imported cattle are tested by tuberculin before being discharged from quarantine.

Actinomycosis "Big Jaw," "Lump Jaw," &c.

This disease would appear to be on the increase both in domestic and in range stock. No less than 59 affected animals were rejected by the inspectors at the stockyards, while only two were rejected as tuberculous.

Sheep Scab in North west Territories.

By reference to the report by inspector Robert Evans, it will be seen that the measures taken for the eradication of sheep-scab in the North-west Territories have been successful. Very few infected flocks or places remain. These are under control, and several thousands of sheep have been shipped from the infected districts, without disease being discovered on them.

No Pleuro-pneumonia in Canada.

Notwithstanding the alleged discovery again by the veterinary staff of the Imperial Government of pleuro-pneumonia in Canadian cattle, the most diligent search for it on the farms and in the districts whence the animals which were found diseased were shipped has failed to find it. No trace of any such disease could be found, nor was any found by the examination of the lungs of thousands of cattle at the abattoirs. I have pleasure therefore in reporting that so far as can be known no pleuro-pneumonia exists in Canada, and in assuring you that considering the notoriety that the continuance of the embargo on Canadian cattle and the statement that the plague had been again discovered on three Canadian steamships, the "Toronto" "Mongolian" and "Laurentian," from Montreal, the subject is so thoroughly discussed in agricultural circles, and the press, that it would be impossible for it not to be known if it did exist.

I have the honour to be, sir,

Your obedient servant,

D. McEACHRAN,
Chief Veterinary Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 2.

REPORT OF THE POINT LÉVIS QUARANTINE.

(J. A. COUTURE, D.V.S.)

QUEBEC, 26th October, 1894.

SIR,—I beg to inclose my annual report of the live stock imported through the Point Lévis cattle quarantine.

The number of cattle imported from the 1st November, 1893, up to date is 17.

Two hundred and ninety-nine sheep and 22 pigs have come into the quarantine during the same period. All the pigs and cattle remained in Canada. 112 sheep went into the United States and 187 were for Canada. Of the 187 sheep, 33 were for the province of Quebec, 151 were for Ontario, and 3 for Manitoba. All the stock proved to be healthy.

I have prepared a detailed statement of the animals imported, which will be found herewith.

I have the honour to be, sir,

Your obedient servant,

J. A. COUTURE,
Assistant Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

STATEMENT of Cattle Imported at Point Lévis Cattle Quarantine, 1894.

Date of Arrival.	Steamer.	Line.	From	Ayrshires.				Owner.	Address.	Date of Sailing.	Date of Discharge.
				Bull.	Cows.	Calves	Total.				
1894. July 30...	Sarnia.....	Dominion.....	Liverpool.....		3	1	4	Robert Hall.....	Edmonton Ont.....	July 20..	October 17.
Sept. 2...	do	do	do	1	5	1	7	R. D. Dundas.....	Springville, Ont.....	Aug. 24..	In quarantine.
do 2...	do	do	do		6		6	J. H. Douglas	Warkworth, Ont.....	do 24..	do
			Total.....				17				

STATEMENT of Swine Imported at Point Lévis Cattle Quarantine, 1894.

Date of Arrival.	Steamer.	Line.	From	Berkshire.			Yorkshire.			Owner.	Address.	Date of Sailing.	Date of Discharge.
				Boars.	Sows.	Total.	Boars.	Sows.	Total.				
1894. July 18...	Hamilton.....	Dominion.....	Bristol.....	7	14	21				J. G. Snell.....	Edmonton, Ont.....	July 7..	July 31.
do 18...	do	do	do				1			Jos. Featherstone...	Straightville, Ont....	do 7..	do 31.
	Total.....					21							
	Grand Total.....												

J. A. COUTURE, D.V.S.,
Assistant Inspector.

STATEMENT of Sheep Imported at Point Lévis Cattle Quarantine

Date of Arrival.	Steamer.	Line	From	Shropshire.			Oxford.			Cotswold.			Hampshires.			Lincoln.		
				Rams.	Ewes.	Total.	Rams.	Ewes.	Total.	Rams.	Ewes.	Total.	Rams.	Ewes.	Total.	Rams.	Ewes.	Total.
				1893.														
Nov. 7	Sarnia	Dominion.	Liverpool.		25	25												
do 7	do	do	do	1	50	51												
1894.																		
May 21	Sarnia	Dominion.	Liverpool.	3		3												
do 22	Texas	do	Bristol.				2	60	62									
June 27	Lake Winnipeg.	Beaver.	Liverpool.													2	10	
do 27	do	do	do														12	
July 18	Hamilton.	Dominion.	Bristol.							6	12	18						
do 27	Lake Superior.	Beaver.	Liverpool.	5	38	43												
do 27	do	do	do							3	2	5	4	2		6		
do 27	do	do	do	1	5	6												
do 27	do	do	do	1		1												
do 27	do	do	do	1		1												
do 27	do	do	do	2	8	10							1	3		4		
do 27	do	do	do															
July 29	Memphis.	Dominion.	Bristol.				4	4	8									
Aug. 13	Mexico.	do	do															
do 14	Toronto.	do	Liverpool.															
do 14	do	do	do							1	2	3	4	2		6		
do 14	do	do	do															
do 18	Numidian	Allan.	do	1	3	4												
Sept. 2	Sarnia	Dominion.	do															
				15	129	144	6	64	70	10	16	26	9	7	16	2	10	
																	12	

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from November 7th, 1893, to October 25th, 1894.

Dorset.			South Downs.		Leicester.		Suffolk.		Grand Total.	Owner.	Address.	Date of Sailing.	Date of Discharge.
Rams.	Ewes.	Total.	Rams.	Ewes.	Rams.	Ewes.	Rams.	Ewes.					
												1893.	1893.
										25 J. N. Greenshields.	Danville, Que.	Oct. 27.	Nov. 22
										51 W. S. Hawkshaw.	Glenworth, Ont.	do 27.	do 22
												1894.	1894.
										3 J. A. MacMillan.	Brandon, Man.	May 10.	June 5
										62 W. B. Cockburn.	Aberfoyle, Ont.	do 11.	do 6
										12 J. J. England.	Caro, Michigan.	June 15.	July 11
						1	5	6		6 C. H. Marshall.	Vergennes, Vt.	do 15.	do 11
										18 J. G. Snell.	Edmonton, Ont.	July 7.	do 31
										43 G. E. Breck.	Paw Paw, Mich.	do 18.	Aug. 11
										11 Wm. Newton.	Pontiac, Mich.	do 18.	do 11
										6 Geo. Allen.	Allerton, Ill.	do 18.	do 11
										1 W. Perrin.	Rochester, N. Y.	do 18.	do 11
										1 M. Levering.	Lafayette, Ind.	do 18.	do 11
										4 Jas. Peirce.	Troy, Ohio.	do 18.	do 11
										10 H. W. Keyes.	Newberry, Vt.	do 18.	do 11
										11 W. B. Cockburn.	Aberfoyle, Ont.	do 18.	do 11
										7 J. A. McGilvery.	Uxbridge, Ont.	Aug. 3.	do 28
										6 F. W. Barrett.	Wadsworth, N. Y.	do 4.	do 30
										3 Geo. Allen.	Allerton, Ill.	do 4.	do 30
										9 Ira G. Hiller.	Four Towns, Mich.	do 4.	do 30
						2	2			8 Hon. M. H. Cochran.	Hillhurst, Que.	do 9.	Sept. 1
										2 J. H. Douglas.	Warkworth, Ont.	do 24.	do 27
2	9	11	3	6	9	1	7	8	3	3	299		

J. A. COUTURE, D.V.S.,
Assistant Inspector.

No. 3.

REPORT OF CATTLE QUARANTINE, ST. JOHN, N. B.

(J. H. FRINK, V. S.)

ST. JOHN, N. B., 31st October 1894.

SIR,—I beg to submit my annual report concerning this station. The importation of foreign animals has been very limited, only two being brought in, one a Hol-stein bull, imported by Hon. A. G. Blair, Attorney General, and one by Dr. Stevens, from the State of New York. The prescribed term of quarantine was enforced, and the animals discharged in good health. During the month of April, I received information from the Collector of Customs, of St. Stephen, N. B., that a disease which was supposed to be tuberculosis, had attacked a number of herds of cattle in Charlotte County; a typical case being that of a herd owned by B. L. Moore, Esq., of Moore's Mills. I proceeded there under departmental instructions. It was evident after a brief examination, that tuberculosis was not the source of trouble. Thirteen head of cattle in the stables were affected with a disease, manifested by cough, fever, pustular eruption of the skin, and visible mucous membranes. Abundant evidence was present to denote its contagiousness. An accurate detailed statement of the symptoms and surroundings, together with some pathological specimens, were sent to the office of the chief inspector, who pronounced the disease "variola vaccinia," genuine cow-pox. The place was declared infected, and after about twelve days the quarantine was raised. One animal died, the post-mortem revealing the fact that death was caused by that form of variola, known as hemorrhagic. Several other herds were affected in the vicinity, but none, as seriously as this one, the loss falling heavily on the owner, as these were nearly all milch cattle, and the disease necessitated the destruction of the milk. I also visited a herd at a place called Pomeroy Ridge, where it was said a violent outbreak had occurred, but on examination, these animals were nearly well, and no active interference was taken. I received a supply of tuberculin, the new agent used in the diagnosis of tuberculosis. I have been unable to use it, for although I have every reason to believe that tuberculosis exists in herds which supply in part the city with milk, the owners will not tolerate any tests, for fear that their business may be ruined. Any experiments or tests with this agent will be duly recorded.

I have the honour to be, sir,

Your obedient servant,

JAMES H. FRINK,
Veterinary Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 4.

REPORT OF THE HALIFAX, N.S., CATTLE QUARANTINE STATION.

(WM. JAKEMAN, D.V.S.)

HALIFAX, 25th October, 1894.

SIR,—I have the honour to herewith submit to you my annual report as superintendent of cattle quarantine at the port of Halifax for the year 1894.

Cattle Exported.

None.

Cattle Imported.

1893.

Nov. 6th.—Per ss. "Portia" from New York, two mares, standard bred, for Mr. Pugsley, Amherst, N.S.

Nov. 20th.—Per "Express" from New York, two merino sheep for W. H. Lawson, South Rawdon.

1894.

Mar. 4th.—Per ss. "Halifax" from Boston, one mare, property of Mr. Gibbons, Halifax, N.S.

Mar. 25th.—Per ss. "Halifax" from Boston, one yearling filly, property of Mr. Foster, Halifax, N.S., also one stallion en route to P.E.I.

Mar. 29th.—Per ss. "Carthaginian," six head of Ayrshire cattle, the property of Messrs. Dawes & Co., Montreal, Canada.

April 2nd.—Per ss. "Halifax" from Boston, one stallion, thoroughbred, the property of the Windsor syndicate.

June 3rd.—Per ss. "Olivette" from Boston, one horse the property of Mr. McDougall.

June 6th.—Per ss. "Corean," Allan Line, from Glasgow, Scotland, one cow, one bull, two dogs, the property of D. C. Stacey, Brockville, Ont.

June 12th.—Per ss. "Portia" from Newfoundland, one horse, property of John Currie.

Oct. 14th.—Per ss. "Halifax" from Boston, one horse, the property of Mr. Parsons.

Oct. 21st.—Per ss. "Halifax" from Boston, one horse, the property of Mr. Fullerton.

I have the honour to be, sir,

Your obedient servant,

WM. JAKEMAN, D.V.S.,
Veterinary Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 5.

REPORT ON ONTARIO CATTLE QUARANTINE.

(ANDREW SMITH, F.R.C., V.S.)

TORONTO, 31st October, 1894.

SIR,—I have the honour to report on the state of cattle in the province of Ontario during the year ended 31st October, 1894.

Cattle throughout the province have been generally healthy with a few exceptions.

In the county of Grey, during the winter a number of cattle suffered from gangrenous ergotism, a result of injudicious feeding, as shown by the report of the following cases.

On Tuesday, 27th March, I visited the districts of Markdale and Flesherton, and made an investigation as to a disease existing among cattle in said districts.

First visited the farm of Donald McCormack, lot 15, con. 10, Glenelg, who has had twelve head of cattle more or less affected, five having died or been destroyed. The disease was noticed about the end of January and I found five animals affected, one very severely, the right hind leg showing signs of sloughing off above the fetlock. Mr. McCormack's farm is very poor land and the cattle are poorly cared for.

Next visited George Leech's farm and found one cow and one year-old heifer affected. The latter had lost part of the hind limb and the stump was gratulating over. The cow was affected in both hind legs. Both animals were to be destroyed.

At Mr. John H. Hayes, lot 101, Glenelg, found one cow affected, but likely to recover. Mr. Hayes had two other animals diseased, and destroyed some time ago.

At Mr. Blair's farm, lots 24 and 25, Artemesia, found several diseased animals. Mr. Blair has seventeen head of cattle and thirteen have been affected. One cow was very badly diseased and Mr. Blair had this cow destroyed in my presence, as both hind legs were separating above the fetlocks. Mr. Blair has a good farm and his cattle are well cared for generally, but the hay which they were fed during the fall and early winter was very much ergotised.

Judging from communications and personal interviews with Messrs. Cunningham and Otterwell, veterinary surgeons of Markdale and Flesherton, as to said disease and from examination of provender and from personal examinations of cases, I believe the disease due to local causes, and are well marked cases of gangrenous ergotism. This disease is not new, but has been rarely noticed in Ontario. A few years ago a few cases were reported in the county of Perth, and about twenty years ago it existed to a slight extent in the western part of the province. In 1884 it existed extensively in various parts of Illinois, Missouri and Kansas.

These ergotised grasses when used continuously and under certain conditions injuriously affect the system in general, and by action on involuntary muscular fibre impair the circulation, causing capillary contraction and gangrene, more especially of those parts removed from the centre of the circulatory systems, such as the lower parts of the limb and sometimes the tail. In some cases it may act locally and thus increase the irritation. The disease begins by causing a slight disturbance of the digestive organs, a gradual falling off in the condition, followed by tenderness of the feet and limbs, at first slight heat, then unnatural coldness (impaired circulation) and gangrene.

The hay which is the principal cause of the disease in the above mentioned cases, is a species of blue grass, commonly called June grass, and readily becomes ergotised in certain seasons.

Department of Agriculture.

The disease is serious in character, but is easily preventible, by avoiding the use of ergotised hay, or any food showing signs of ergot.

The treatment of severe cases of gangrenous ergotism is difficult, but anything that tends to improve the general condition, such as nourishing and wholesome food, and especially roots, such as turnips; carrots, in moderate quantities, combined with medicinal remedies are of benefit, together with the use of antiseptics, locally when required. Grasses readily ergotised should be cut early in the season before an ergotised condition comes on.

The veterinary surgeons referred to have given good advice to the farmers. I expect the disease will be easily controlled, and with the advent of spring will disappear, it is *non-contagious* and there is no necessity of creating any alarm. No doubt it is unfortunate for these farmers whose animals are affected, and the loss in some instances is serious.

Several cases of disease and deaths of cattle, in various parts of the province of Ontario occurred during the latter part of the past summer and autumn. The symptoms of these have been very similar, also the post-mortem appearances. The actual exciting cause does not seem very easy to be explained. There is inflammation of the first three stomachs in most cases. Whether this is caused by hard deleterious food, the result of the long dry weather, poisonous weeds, or other poisons, is not clear.

During the past summer, careful investigations have been made by Mr. Sweetapple and other inspectors, under instructions from your department, in various parts of the province of Ontario, from which cattle were procured that were shipped to Great Britain. The farms on which these cattle were raised and fed were visited, and the stock upon them fully inspected, with the result that in no instance were there any cases simulating contagious pleuro-pneumonia to be found, nor any suspicion of that disease ever having existed in the country; neither were there any cases of pleuro-pneumonia of any kind.

Several cases of tuberculosis in cattle were reported, and in some instances the tuberculin test was used with satisfactory results as a diagnostic agent.

I am sir,

Your obedient servant,

ANDREW SMITH, F.R.C., V.S.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 6.

REPORT OF POINT EDWARD (ONT.) CATTLE QUARANTINE.

(E. P. WESTELL, V.S.)

SARNIA, 31st October, 1894.

SIR,—I have much pleasure in submitting this my annual report of cattle and swine received into the Ontario Cattle Quarantine Station at Point Edward, Ont., dating from 31st October, 1893, to 31st October, 1894, inclusive.

The importation of cattle has been very much less than that of former years, having only received 20 head in all.

In addition to the cattle and swine, we also received into quarantine a large Buffalo bull, imported by Mossom, Boyd & Co., Bobcaygeon, who purchased him in California, U.S., at a very high price, their object being to breed him with the Galloway cow, the skin of the offsprings to be manufactured into robes which are very much prized for their beautiful fur and durability.

The number of swine imported was somewhat larger than that of previous years, and consisted principally of the improved Chester white breed.

I have great pleasure in reporting that all the animals received at this station were in perfect health.

Attached you will find a detailed report of the various animals received and quarantined at this station.

I am, sir, your obedient servant,
E. P. WESTELL, V.S.,
Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

ANNUAL Report of Cattle received into the Ontario Cattle Quarantine, for the Year ending 31st October, 1894.

Date of Entry.	Holstein.		Durhams.		Jerseys.		Grades.	Removal.	Valuation	Consignee and Address.
	M.	F.	M.	F.	M.	F.				
1893.									\$ cts.	
Nov. 23							1 Buffalo bull.	Feb. 20	750 00	Mossom, Boyd & Co., Bobcaygeon, Ont.
Dec. 7							1	Mar. 6	50 00	Jno. W. Robinson, St. Marys, Ont.
1894.										
Jan. 4		3						April 3	75 00	Wm. C. Blackburn, Chatham.
do 23	1	4						do 27	300 00	Geo. Rice, Currie's Cor., Ont.
Mar. 2							3 cows, settlers' effects	May 30	60 00	H. Coyle, St. Catharines, Ont.
Apr. 14							2	July 13	125 00	W. Rolph, Markham, Ont.
do 18							2 cows, settlers' effects	do 17	40 00	Mrs. M.A. St. Charles, Madoc, Ont.
May 9					1			Aug. 6	75 00	W. Rolph, Markham, Ont.
June 30					1			Sept. 27	100 00	do do
Aug. 11			1					Yet in quar.	200 00	D. B. Burch, Lambeth, Ont.
Sept. 5								do	75 00	G. N. Mathewson, Sarnia, do
Total.	1	7	1		2	5	6		1,850 00	

E. P. WESTELL, V.S., *Inspector.*

Department of Agriculture.

REPORT of Swine received into the Ontario Cattle Quarantine for the Year ending 31st October, 1894.

Date of Entry.	Chester White.		Poland China.		Duroc Jersey.		Berkshire.		Cheshire.		Essex.		Value. \$ cts.	Removal.	Consignee and Address.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.			
1893.															
Dec. 20	1	1											45 00	11	Wm. Buttler, Ingersoll, Ont.
do 21					1	1							50 00	do 12	W. E. Buttler, Dereham Centre.
do 23		2											50 00	do 15	Wm. Buttler & Son, Ingersoll.
do 26				1									30 00	do 17	Wm. Hill, Clifford, Ont.
1894.															
Jan. 3					1								50 00	do 24	Peter Lamarsh, Wheatley, Ont.
do 10		1											35 00	do 31	A. Logan, Watford, Ont.
do 18	1												25 00	Feb. 7	H. George, Crompton, Ont.
Feb. 3			1	1									75 00	do 26	R. McMullin, Leamington, Ont.
do 14						1	1						75 00	March 6	C. T. Garbett, Claremont, do
do 23						2							100 00	do 14	Peter Lamarsh, Wheatley, do
do 23						1							50 00	do 14	Tape Bros., Ridgetown, do
do 23						1							25 00	do 18	James Gonsell, Highgate, do
April 28						1							30 00	June 20	A. J. Taylor, Glencoe, do
May 31	1	1						1					20 00	July 2	J. H. Holmes, Norwich, do
June 9									1				35 00	do 2	Jos. Barkey, Stouffville, do
do 9		1											20 00	do 2	A. L. Hoover, do do
do 10		1											30 00	do 4	J. Loughton, Markdale, do
do 13		1											40 00	do 5	C. Hamilton, Picton, N. S.
do 14						1	1						25 00	do 12	D. Stickle, Kippin, Ont.
do 21				1	1								45 00	Oct. 13	H. George, Crompton, Ont.
Sept. 21		1											45 00	do 13	Jos. Featherston, Port Credit, Ont.
do 22											2		35 00	do 16	Wm. Hannah, Bewdley, Ont.
do 25		1											100 00	do 18	G. J. Snell & Bro., Gulph, Ont.
do 28							1						20 00	do 20	G. S. Richardson, Sarnia, do
do 30		1											50 00	do 22	G. J. Snell & Bro., Guelph, do
Oct. 3							1						40 00	do 24	Wm. Fortune, Kamloops, B. C.
do 4		1											25 00	do 25	Wm. Hill, Clifford, Ont.
do 5							1						50 00	do 29	Oliver Drury, Fargo, Ont.
do 8							1						50 00	do 29	George Defoe & Herron, Springfield, Ont.
do 9													50 00	do 29	George Defoe & Herron, Springfield, Ont.
Total...	10	8	5	5	3	6	3	1	1	1	2		1,270 00	Yet in quar.	

Total number 44.

E. P. WESTELL, V.S., Inspector.

No. 7.

REPORT OF THE EMERSON CATTLE QUARANTINE.

(D. H. McFADDEN, V.S.)

EMERSON, 31st October, 1894.

SIR,—In compliance with your directions I have the honour to submit a report (my eleventh annual), of the operations at the Emerson and Gretna cattle quarantine and live stock inspection stations for the year ending 31st October, 1894.

Accompanying this report I append the customary tabulated statements showing:—

1. The horses and mules imported, their importers, whence and to where destined in each case.
2. The cattle imported, and details as above.
3. The sheep, table and details.
4. Table of swine.
5. A comparative table showing the volume of importations of stock in general during each of the five years last passed, inclusive of the present one, by which it will be seen that there is a remarkable uniformity in the classes of horses, sheep and swine respectively, in this year's numbers as compared with last, whilst on the other hand there is a marked falling off in the number of cattle. This can no doubt be attributed to the opening up of the Sault line of the Canadian Pacific Railway, which crosses the boundary line at North Portal, and over which line a great number of settlers from South Dakota and other states have come into the Canadian North-west, whereas, in former years, the whole tide of immigrants, with their effects, entered by way of Emerson and Gretna.

I am pleased to be able to state that the quality and condition of the stock brought in this year have been markedly both higher and better than has been the case in former years, especially so in the case of cattle. This should be gratifying to your department, inasmuch as it betokens a solid addition to the material prosperity of our country. It has certainly been gratifying to myself and those having care of the cattle under me, for, whilst last year there were six deaths in quarantine, nearly all directly attributable to the poor condition of the animals when they came into the country, there has been, during the year just ended, but one death to record. In this instance, that of a small heifer, the property of Mr. John C. Land. The animal took sick with enteritis on the morning of August 23rd, and though I at once gave her strict attention she died on the morning of the next day. In order to make sure of my diagnosis, I held a post-mortem examination, and found that the cause of death was inflammation of the small intestines.

Owing to the reported outbreaks of tuberculosis, I have kept a strict watch for any symptoms of that disease, but have so far failed to observe any sign of it, the cattle in almost every instance improving in condition and leaving the quarantine better than when they entered it. To the correctness of this statement the respective owners have themselves subscribed by stating it in the receipt which is taken from them on removing cattle at the expiration of the period of detention, and which receipts are kept on file.

There are at this date fifty-one head of cattle in detention, all doing well.

The subject of noxious weeds might perhaps be considered foreign to the matter of this report. Mindful, however, of the instructions which your department in wise forethought issued a year ago, I have kept vigilant watch on the quarantine grounds both at Emerson and Gretna for the first appearance of the dreaded Russian

Department of Agriculture.

thistle : happily thus far, without finding a weed. Unfortunately, it has made its appearance in other parts of the province, and it is therefore a reasonable presumption to attribute its non-appearance within my jurisdiction to the efficacy of the rule of your department—that all stock cars shall be thoroughly cleaned out before crossing the boundary line. It is only necessary to add that the provincial government of Manitoba adopted prompt and stringent measures to eradicate the pest immediately on its presence being made known.

As in the past, I have again to acknowledge the unfailing courtesy and willing assistance of Her Majesty's customs officers, as also of the different railway officials with whom my duties bring me into contact.

I have the honour to be, sir,
Your obedient servant,

D. H. McFADDEN, V.S.,
Veterinary Inspector.

The Honorable
The Minister of Agriculture,
Ottawa.

DETAILED Report of Horses and Mules inspected at Emerson and Gretna Quarantine Stations, 1894.

Date.	Name of Owner.	Where from.	Destination.	No.
1893.				
Nov. 2.	J. Starak	Canton, N. D.	Edmonton, N. W. T.	3
do 2.	J. C. Longstreet	Iowa, U. S. A.	Winnipeg.	5
do 3.	Uncle Tom's Cabin.	Pembina, N. D.	do	5
do 3.	C. W. Pacholke.	Glaston do	Edmonton, N. W. T.	6
do 4.	W. E. Armstrong	Yankton do	do	5
do 4.	W. H. Camack	Jessop, Neb.	do	4
do 5.	C. J. Carter	Benson, Minn.	do	2
do 5.	James Carr	do	do	2
do 5.	W. D. Ferree	do	do	2
do 5.	James Blade.	Freeland, Minn.	do	5
do 6.	J. McKenzie.	St. Louis, Wis.	Portage la Prairie.	1
do 7.	P. Breclard	Neche, N. D.	St. Francois Xavier	1
do 7.	T. J. Cunningham	Crystal, N. D.	Edmonton, N. W. T.	4
do 8.	T. J. Cunningham	do	do	4
do 8.	R. A. Hurlbart	do	do	4
do 8.	C. J. Blougren	do	do	3
do 8.	H. Chapmam	Forest River, N. D.	Lacombe, N. W. T.	2
do 11.	George Gunn	Osnabruck, N. D.	Dominion City	3
do 13.	M. Klyne	Bathgate, N. D.	Emerson.	2
do 13.	C. M. Dobson	Ithaca, Neb.	Wetaskewan, N. W. T.	5
do 15.	H. E. Woolley	Hoxie, Kansas.	Olds, N. W. T.	2
do 24.	G. W. Streeter.	St. Clare, S. D.	Lacombe, N. W. T.	6
do 27.	A. W. Reah	Stewart, Iowa	Minnedosa.	4
do 28.	O. Empsey	Carlisle, N. D.	Emerson	11
Dec. 1.	Jno. McLaren	Pembina, N. D.	Lake Dauphin	3
do 1.	A. Quincee	do	do	8
do 1.	D. H. McFadden.	do	Emerson	1
do 2.	A. Smith	Neche, N. D.	Gretna	1
do 4.	D. J. Swinton	Buffalo, N. D.	Stonewall.	4
do 4.	J. Spencer	do	do	1
do 7.	H. Juneau	McIntosh, N. D.	Edmonton, N. W. T.	4
do 11.	A. J. Jones	Neche, N. D.	North Portal do	1
do 12.	C. F. Krossa.	Creston, Neb.	Edmonton do	4
do 9.	P. Herbert.	Neche, N. D.	Gretna	1
do 20.	L. Pare.	Wylie, Minn.	Edmonton, N. W. T.	3
1894.				
Jan. 22.	W. Cox	Neche, N. D.	Gretna	2
do 25.	Frank Chase	Joliette, N. D.	Bird's Hill	2
Feb. 8.	A. F. Crowe.	Grand Forks, N. D.	Winnipeg.	1
do 8.	P. Thompson	Carilleer, N. D.	Arden	2
do 12.	S. M. Webb.	Pembina, N. D.	Winnipeg	1
do 23.	B. Lancton	Bala City, Kansas.	Calgary, N. W. T.	6
March 2.	J. Funk	Neche, N. D.	Gretna	2
do 3.	H. Cope	Dalton, Iowa	Carberry	6
do 8.	W. Watson	Hamilton, N. D.	Lethbridge	6
do 12.	P. Thompson	Carilleer, N. D.	Arden	5
do 13.	W. Machdanz	Neche, N. D.	Letellier	4
do 21.	D. Minorgan.	Minneapolis, Minn.	Rosser	1
do 23.	P. Neufeldt.	Butterfield, Minn.	Rosthern, N. W. T.	5
do 26.	Wm. Bennett.	Brunswick, Neb.	Edmonton, N. W. T.	3
do 26.	T. Swan	do	do	3
do 26.	R. M. Barber	do	do	3
do 26.	Jacob Rufus	Scotland, S. D.	Portage la Prairie	10
do 27.	C. Sutherland	Minto, N. D.	Owen Sound, Ont.	1
do 27.	R. Pelletier	Crookston, Minn.	Edmonton, N. W. T.	1
do 29.	F. R. Saylan.	Perkham, Minn.	Wetaskewan do	7
April 5.	A. Waldecke	Randolph, Minn.	Niverville do	6
do 6.	R. Baer	Denison, Iowa	Gladstone	6
do 7.	S. J. McDonald	Aberdeen, S. D.	Edmonton.	8
do 7.	Christie & Fares.	Carmen, Ill.	Emerson	17
do 12.	A. Klyne	Leroy, N. D.	Wolseley, N. W. T.	2
do 12.	M. Klyne	do	do	8
do 15.	Joseph Watson	St. Louis, Minn.	Winnipeg.	4

Department of Agriculture.

DETAILED Report of Horses and Mules inspected at Emerson and Gretna Quarantine Stations—Continued.

Date.	Name of Owner.	Where from.	Destination.	No.
1894.				
April 18.	F. Bain	Neche, N.D.	Rat Portage	3
do 24.	H. Schmidt	St. Paul, Minn.	Morris	3
do 26.	A. Proctor	Randolph, Wis.	Winnipeg	1
do 30.	W. Bredson	Arkansas, U.S.	do	10
May 7.	H. A. Meyer	Red Wing, Minn.	Arden	2
do 7.	J. W. Meyer	do	do	2
do 7.	P. C. Meyer	do	do	2
do 7.	C. H. Meyer	do	do	2
do 8.	O. Schultz	Neche, N.D.	Gretna	1
do 8.	H. Ritz	do	do	1
do 8.	M. Long	do	do	1
do 11.	H. H. Huntly	Stephen, Minn	Winnipeg	2
do 11.	A. D. Huntly	do	do	1
do 18.	Gullick Iverson	do	Wetaskewan	2
do 18.	G. W. Newton	Bathgate, N.D.	Edmonton	3
do 21.	E. Hinsell	Fergus Falls, Minn.	Innisfail	2
do 23.	J. Haberstock	Marion Junction, S.D.	Langenburg, N.W.T.	2
do 23.	P. Ratgeber	do	do	2
do 23.	G. Haas	do	do	3
do 23.	J. A. Johnston	Crookston, Minn.	Wetaskewan	3
do 23.	O. M. Tinseth	do	do	6
do 23.	K. Reich	Marion Junction, S.D.	Langenburg, N.W.T.	2
do 24.	O. Thompson	Belmont, N.D.	Edmonton	2
do 24.	J. R. Reif	Buxton, N.D.	do	6
June 6.	R. Grandy	Neche, N.D.	Gretna	2
do 6.	Hugh Camerie	Polk Co., Minn.	Winnipeg	3
do 8.	Jno. C. Land	do	Wetaskewan	4
do 8.	M. Williams	Schuyler, Neb.	Red Deer, N.W.T.	15
do 8.	S. Gilmour	David City, Neb.	do	5
do 8.	T. E. Comers	Doon, Iowa	Edmonton	4
do 8.	S. Watt	Sioux City, Iowa	do	2
do 8.	D. C. Ebersole	do	do	2
do 8.	G. W. Streeter	Santa Clara, S.D.	Lacombe	3
do 9.	H. W. Hunt	Inkster, N.D.	Innisfail	7
do 9.	Evan Alstadt	Minnesota	Wetaskewan	2
do 11.	J. McFadden	Neche, N.D.	Lake Dauphin	4
do 11.	E. J. McFadden	do	do	4
do 12.	T. Klaasen	Madison, Minn.	Edmonton	11
do 13.	P. Jeffrey	Boone, Iowa	Portage la Prairie	2
do 13.	H. B. Stranger	Wheaton, Minn.	Carman	2
do 14.	C. Lindahl	Foston, Minn.	Wetaskewan	2
do 18.	D. Baxter	Hillsboro', N.D.	Edmonton	4
do 18.	C. Benson	Caledonia, N.D.	do	2
do 29.	G. Murray	Grafton, N.D.	Winnipeg	2
do 29.	J. T. Cable	do	do	4
do 29.	W. R. Elliott	Grand Forks, N.D.	do	2
July 2.	J. Gibbon	Scotland, S.D.	Wetaskewan	9
do 2.	Thos. McGill	Dighton, Kan.	Red Deer	4
do 3.	A. Gibbon	Scotland, S.D.	Wetaskewan	4
do 4.	H. VanBuren	Neche, N.D.	Morden	2
do 11.	S. Murray	Grand Forks, N.D.	do	1
do 13.	G. Thompson	Crandon, N.D.	Winnipeg	2
do 13.	T. Zigler	Athol, S.D.	do	1
do 16.	M. Finseth	Polk Co., Minn.	Wetaskewan	1
do 16.	J. Jennings	do	do	5
do 22.	J. Simpson	Grand Forks, N.D.	Winnipeg	2
do 22.	J. T. Cable	do	do	7
do 23.	W. H. Jennings	Moorehead, Minn.	do	1
do 28.	P. C. Demovan	Pembina, N.D.	Gretna	1
do 30.	do	do	do	2
do 31.	do	Cavilier, N.D.	do	1
do 31.	do	do	do	1
do 31.	do	do	do	1
Aug. 1.	do	Neche, N.D.	do	1
do 7.	James Foley	Minto, N.D.	Emerson	2
do 15.	O. St. Godard	Fort Benton, Mont.	Lake Manitoba	22

DETAILED Report of Horses and Mules inspected at Emerson and Gretna Quarantine Stations—Concluded.

Date.	Name of Owner.	Where from.	Destination.	No.
1894.				
Aug. 15.	W. St. Godard	Fort Benton, Mont	Lake Manitoba.	20
do 15.	S. Bélanger	do	do	16
do 17.	S. Wigt	Fremont, S.D.	Rosenfeldt.	8
do 17.	P. Kleinsassar	do	do	4
do 19.	John A. Slea	Lacoma, N.D.	Winnipeg	1
do 26.	Thos. Ruttle	Grand Forks N.D.	do	1
do 29.	C. Winton	Yankton, S.D.	Wetaskewan	3
do 29.	J. E. Maley	Neche, N.D.	Brandon	1
do 30.	W. P. Upton	Grand Forks, N.D.	Winnipeg	3
Sept. 3.	T. Murah	Parker, S.D.	Rosthern, N.W.T.	4
do 3.	H. Kimble	do	do	3
do 3.	P. Peters	do	do	2
do 3.	P. Eichendorf	do	do	6
do 6.	R. Grandy	Omaha, Neb.	Brandon	2
do 8.	A. Kimston	Ola, S.D.	Oak Lake.	2
do 8.	W. H. Campbell	Cozad, Neb.	do	2
do 8.	A. Lense	Brule, S.D.	do	2
do 8.	J. Frew	Cozad, Neb.	do	2
do 13.	A. G. Cudenning	Edinburgh, N.D.	Winnipeg	5
do 17.	L. J. Freeman	Appleton, Minn.	Kinnisto, N.W.T.	2
do 22.	T. L. McCrea	Neche, N.D.	St. Jean-Baptiste	9
do 22.	G. M. Webb	Grand Forks, N.D.	Winnipeg	4
do 24.	N. Parks	Dalton, Minn.	Wetaskewan	2
do 24.	H. F. Parks	do	do	4
do 24.	P. A. Parks	do	do	1
do 24.	G. E. Parks	do	do	1
do 24.	J. E. Smith	do	do	1
do 25.	Gavin Thompson	Spring Co., N.D.	LaSalle, Man.	5
do 29.	C. E. Vaughan	Moorehead, Minn.	Wetaskewan	6
do 30.	James Buchanan	Parkeston, N.D.	Winnipeg	5
Oct. 5.	P. C. Moran	East Grand Forks.	Wetaskewan	7
do 5.	O. Didrichson	do	do	1
do 9.	Herbert W. Husband	Hallock, Minn.	St. François-Xavier	1
do 10.	B. Proule	Fisher's Landing	Wetaskewan	2
do 12.	A. H. Schmidt	Freeman, S.D.	Rosthern	4
do 12.	E. Bédard	Grand Forks, N.D.	Edmonton	3
do 12.	L. Hébert	Tyner, N.D.	La Broquerie	2
do 12.	C. Bar	Washington, N.D.	Prince Albert	6
do 12.	K. Aavoldson	Morken, Minn.	Wetaskewan	3
do 12.	T. Aavoldson	do	do	2
do 12.	H. A. Simondson	do	do	2
do 13.	C. Waldren	Freeman, S.D.	Gretna	6
do 15.	O. M. Mickelson	Stephen, Minn.	Edmonton	4
do 15.	Paul Bouen	Neche, N.D.	Emerson	1
do 16.	F. Spenst	Parker, S.D.	Rosthern	4
do 16.	O. Shultz	Coldwater, Mich.	Gretna	2
do 17.	J. J. Johnston	Neby, Minn.	Wetaskewan	2
do 19.	J. N. Jorening	Crookston, Minn.	do	6
do 19.	Thos. Potts	St. Vincent	Emerson	2
do 22.	R. Stewart	Oaks, N.D.	Lacombe	3
do 22.	S. Smart	Worton, Kan.	do	3
do 23.	Geo. W. Newton	Bathgate, N.D.	Leduc, N.W.T.	4
do 24.	S. Pelletier	Wylie, Minn.	Edmonton	1
do 24.	A. Rabe	do	do	3
do 24.	J. Richot	Leroy, N.D.	Carman	3
do 31.	Jos. LaBlanc	St. Vincent	St. Norbert	2

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D. H. McFADDEN, V.S.,
Inspector.

EMERSON, 31st October, 1894.

Department of Agriculture.

DETAILED Report of Cattle Quarantined at Emerson Cattle Quarantine in 1894.

Date.	Name of Owner.	Where From.	Destination.	Oxen.	Steers.	Bulls.	Cows.	Heifers.	Calves.	Born in Quarantine.	Died in Quarantine.	Total.
1893.												
Nov. 3.	Frederick and Son.	Argyle, Minn.	Le Duc, N. W. T.	5		3	5	6	7			
do 5.	James Bland	Freeland, Minn.	Edmonton, N. W. T.				3	2				
do 6.	T. J. Cunningham.	Crystal, N. D.	do				3					
do 16.	George Sholte.	do	Innistaal, N. W. T.				1	4				
do 23.	Odannah Empey.	Carlisle, N. D.	Spring Bank.				3	1				
1894.												
Mar. 10.	H. Muchdantz.	Neche, N. D.	Letellier, Man		15		1			1		
do 20.	E. J. and J. McFadden.	do	Gladstone, Man.			3	13	17		1		
June 6.	Hugh Comrie	Polk Co., Minn.	Winnipeg.				3		2			
do 7.	G. W. Streeter.	St. Claire, S. D.	Lacombe, N. W. T.		1		10	4	3	5		
do 8.	Jno. C. Land	Polk Co., Minn.	do				5	3	2	1	1	
do 14.	C. Lindahl.	Foston, Minn.	Wetaskewan, N. W. T.		1		5	5	2	2		
July 2.	Alex. Gibbon	Scotland, S. D.	do		1	1	5	5	5	3		
do 14.	Nails Jennings	Polk Co., Minn.	do		2	2	15	5	3	1		
do 25.	O. C. Thomson	Trail Co., N. D.	Edmonton.				6	5				
do 27.	Olstadt and Iverson.	Foston, Minn.	Wetaskewan			1	7	8	2			
Sept. 22.	T. L. McCrea.	Neche, N. D.	St. Jean Baptiste.			1	3	4	6			
do 24.	Parks and Smith	Dakota, Minn.	Wetaskewan.			1	7	5	3			
do 29.	C. E. Vaughan	Moorhead, Minn.	do			1	2	1				
do 30.	J. Buchanan	Parkston, S. D.	Winnipeg.				1					
Oct. 24.	G. Pelletier	Wylie, Minn.	Edmonton.				1	1				
do 27.	A. Raabe.	do	do				4	2	2			
do 24.	J. Richot.	Le Roy, N. D.	Carman.				2	2				
do 24.	Andrew Stewart.	Pembina, N. D.	Emerson.				2	2				
			Total.	5	19	13	108	75	30	11	1	262

D. H. McFADDEN, V.S.,
Inspector.

EMERSON, 31st October, 1894.



DETAILED Report of Sheep inspected at Emerson and Gretna Quarantine Stations, 1894.

Date.	Name of Owner.	Where from.	Destination.	No.
1893.				
Nov. 1.....	J. Giesbrecht.....	Neche, N.D.....	Rhineland, Man.....	6
do 15.....	Fraser & Sons.....	Montana.....	Emerson.....	200
do 26.....	Geo. Forstall.....	Neche, N.D.....	St. Malo, Man.....	125
Dec. 7....	Hy. Juneau.....	McIntosh, Minn.....	Edmonton.....	22
1894.				
May 18....	Gulick Iverson.....	Minnesota.....	Alberta.....	10
	Total.....			363

D. H. McFADDEN, V.S.,
Inspector.

EMERSON, 31st October, 1894.

Department of Agriculture.

DETAILED Report of Swine Inspected at Emerson and Gretna Quarantine Stations, 1894.

Date.	Name of Owner.	Where from.	Destination.	No.
1893.				
Nov. 4.	W. H. Camack	Issah, Neb.	Edmonton	1
do 7.	Saml. Frederick	Argyle, Minn	LeDuc, N. W. T.	7
do 8.	J. F. Cunningham	Crystal, N. D.	Edmonton	4
do 13.	C. M. Dobson	Ithaca, Neb.	Wetaskewan	5
do 16.	G. G. Allen	Minnesota.	Emerson	1
do 16.	G. F. Fietz	Neche, N. D.	Wetaskewan	2
do 16.	J. Kien	do	do	2
do 16.	O. Empey	Carlisle, N. D.	Emerson	4
do 24.	C. W. Streeter	St. Claire, S. D.	Lacombe	5
Dec. 12.	G. F. Krossa	Creston, Neb.	Edmonton	3
do 29.	S. A. Whitson.	Bathgate, N. D.	Gretna.	6
1894.				
Feb. 21.	W. W. Fraser.	St. Vincent, Minn	Emerson	2
Mar. 13.	H. Machdanz.	Neche, N. D.	Letellier.	3
do 26.	T. Swan	Brunswick, N. B.	Edmonton	3
do 16.	R. M. Barber	do	do	3
April 7.	S. G. McDonald.	Aberdeen, S. D.	do	1
do 7.	Christie & Fares.	Carman, Ill.	Emerson	1
do 12.	M. Klyne.	LeRoy, N. D.	Wolseley.	2
do 12.	R. Martineau.	do	do	2
May 16.	G. Gibbs.	Cavileer, N. D.	Wetaskewan	6
do 18.	D. Fraser & Sons	Northcote, Minn.	Emerson	1
June 2.	T. D. & R. Woodward	U. S.	British Columbia.	1
do 11.	J. McFadden.	Neche, N. D.	Lake Dauphin	3
do 11.	E. F. McFadden	do	do	9
July 3.	A. Gibben	Scotland, S. D.	Wetaskewan	21
do 19.	G. G. Allen	Minto, N. D.	Emerson	1
do 20.	D. Fraser & Sons	Neche, N. D.	do	1
Aug. 11.	W. Feddin.	Elizabeth, Ill.	Prince Albert, N. W. T.	2
Sept. 24.	N. Parks.	Dalton, Minn.	Wetaskewan	1
do 29.	C. E. Vaughan	Moorhead, Minn.	do	10
Oct. 12.	E. Bedard	Grand Forks.	Edmonton	3
do 12.	C. Bar	Washington	Prince Albert.	5
do 20.	J. Krenz.	Hyde Park, N. D.	Edmonton	2
do 24.	A. Rabe	Wylie, Minn.	do	5
do 24.	J. Ritchot	LeRoy, N. D.	Carman, Man.	3
	Total.			131

D. H. McFADDEN, V.S.

Inspector.

EMERSON, 31st October, 1894.

COMPARATIVE Inspection Table, Emerson and Gretna Cattle Quarantine and Live Stock Inspection Stations, for the Years 1890 to 1894, inclusive.

Year.	Cattle.	Horses.	Sheep.	Swine.
1890.	229	732	137	258
1891.	1,022	1,767	123	275
1892.	1,199	1,375	495	111
1893.	568	680	398	120
1894.	262	671	363	131

D. H. McFADDEN, V.S.,

Inspector.

EMERSON, 31st October, 1894.

No. 8.

REPORT OF THE VICTORIA, B.C., CATTLE QUARANTINE.

(M. G. BLANCHARD, V.S.)

VICTORIA, B.C., 1st November, 1894.

SIR,—I have the honour to submit a report of my work for the twelve months ending 31st October, 1894, as follows:—

The animals inspected by me during the year just passed have been up to the average, there having been 29,897 sheep and 261 cattle, 144 horses and 36 mules. No hogs at all were imported, the twenty-one days quarantine prohibiting it so far on account of the cost. The sheep imported were all for mutton, and I do not think any of them remained alive after six weeks. Of the cattle, 200 were for beef purposes, and 61 for breeding and dairy use. Two of these latter were Jerseys, the remainder being grades of various breeds, Durham predominating.

On June 1st an item, purporting to be a despatch from Ottawa, appeared in the *Victoria Colonist*, stating that an order in council had been passed admitting cattle to the province without quarantine, providing they were slaughtered at the boundary. The wire being down and the mails delayed, owing to the great freshet, I was unable to get any confirmation of this report until the 6th, when word was received from Inspector of Customs, J. S. Clute, of New Westminster, that the item was correct, but his instructions only applied to Vancouver. However, Mr. Robert Porter, acting on the strength of this newspaper article, imported fifteen head of beef cattle on the 3rd. These I placed in quarantine in a pen near his slaughter houses pending instructions from the department.

On June 5th nine head of beef cattle arrived for McIntosh & Co., Vancouver, and as no instructions had been received, I placed these also in quarantine near Mr. Porter's lot. On June 6th the collector of customs at this port received word from Inspector Clute to allow McIntosh & Co.'s cattle to go forward to Vancouver for slaughter, as he had special instructions to that effect. This was done the next day.

On the 8th I received a wire from the department to "admit cattle for immediate slaughter without quarantine in separated fenced place provided by city." I immediately released Mr. Porter's cattle into his slaughter pen. On June 10th Mr. Porter received another consignment of thirty-six head; ten of these were transhipped the same night to McIntosh & Co., Vancouver. On the 12th, seeing that the last lot had been killed, twenty head more were received and admitted to his pen. There arrived also forty-four head for D. Burns, of Vancouver. These were transhipped in bond to their destination after being inspected. On the 14th B. Van Volkenburgh received twelve head. These I placed in a pen on the North Dairy Farm. On June 16th R. Porter received sixty-four head. Some of these were slaughtered for the other butchers.

On July 12th I received instructions to enforce the quarantine on cattle, on and after the 25th of the month.

In the case of all the above importations, where the animals remained at this port, I saw that the spirit of the order was carried out, and the importers were only too glad to do so, as without these concessions on the part of the department they would have been unable to supply the cities with beef, as there was no communication with the interior of the province, owing to the freshet having not only overflowed the railway, but also washed away most of the bridges over the streams on the roads leading back into the country.

On July 20th Mr. Heal, of the Royal Oaks, Saanich, reported a suspected case of tuberculosis, which happily turned out to be incorrect. I tested the above case with "tuberculin," a full report of which I forwarded on August 8th to the department.

Department of Agriculture.

On October 26th Geo. McRae imported twenty-three cows and fourteen calves. These I have quarantined in the same barn I used for the lot imported by him on March 13th last.

Appended is a detailed statement showing the number of animals inspected by me during the year, and also of the cattle quarantined.

I have the honour to be, sir,
Your obedient servant,

M. G. BLANCHARD, V.S.,
Veterinary Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

DETAILED Statement of Cattle Quarantined during the year ending 31st October, 1894, by M. G. Blanchard, V.S., Veterinary Inspector.

Importer.	Where from.	Breed.	No.	Where Quarantined.	Date Entered.	Date Discharged.
					1894.	1894.
L. Tait.....	Washington	Jersey.. .. .	1	Simcoe Street.....	Jan. 5.	April 5.
Geo. McRae....	do	Shorthorn grades....	22	Barn and lot on Cedar Hill Road	Mar..15.	June 13.
Capt. Myers....	Oregon	Jersey	1	Dallas Road.....	May 26.	Aug. 24.
*Geo. McRae...	do	Shorthorn grades....	37	Barn and lot on Cedar Hill Road	Oct. 26.	

*These are still in quarantine.

M. G. BLANCHARD, V.S.,
Veterinary Inspector.

ANNUAL REPORT of Inspections of Live Stock at Victoria, B.C., for the year ending
31st October, 1894, by M. G. Blanchard, V.S.

Date Inspected.	Name of Importer.	Where from.	Destination.	Sheep.	Cattle.	Hogs.	Horses.	Mules.
1893.								
Nov. 2.	J. Parker	Washington	Victoria	405				
do 15.	do	do	do	594				
do 18.	R. P. Rithet	California	do				1	
do 22.	R. Porter & Sons	Washington	do	79				
do 25.	C. H. Dumbleton	Oregon	do				2	
do 26.	R. Porter & Sons	Washington	do	197				
do 28.	J. Parker	do	do	715				
Dec. 1.	R. Porter & Sons	do	do	296				
do 13.	J. Parker	do	do	200				
do 13.	W. A. Dyer	California	do				1	
do 14.	R. Porter & Sons	Washington	do	356				
do 20.	J. Parker	do	do	31				
do 26.	R. Porter & Sons	do	do	332				
do 30.	J. Parker	do	do	204				
1894.								
Jan. 2.	R. P. Rithet	California	do				3	
do 5.	L. Tait	Oregon	do		1			
do 10.	J. Parker	Washington	do	202				
do 14.	do	do	do	409				
do 17.	do	do	do	199				
do 20.	R. Porter & Sons	do	do	188				
do 27.	J. Parker	do	do	570				
do 29.	do	do	do	228				
do 30.	R. Porter & Sons	do	do	180				
do 30.	J. Parker	do	do				6	
do 31.	Uncle Tom Cabin Co.	do	Transit.				3	
Feb. 4.	J. Parker	do	Victoria				2	
do 6.	do	do	do	589				
do 9.	R. Porter & Sons	do	do	185				
do 16.	J. Wright	do	do	184				
do 17.	D. McRae	do	Vancouver	200				
do 21.	J. Parker	do	Victoria	398				
do 28.	do	do	do	400				
March 1.	J. Wright	do	do	400				
do 7.	J. Parker	do	do	400				
do 11.	J. Wright	do	do	185				
do 13.	J. Parker	do	do	188				
do 13.	D. McRae	do	Vancouver	200				
do 13.	J. B. Robbins	do	do				2	
do 15.	Geo. McRae	do	Victoria		22			
do 15.	J. Parker	do	do	187				
do 16.	do	do	do	288				
do 22.	Jas. Wright	do	do	371				
do 22.	J. Jones	do	do				10	
do 29.	J. Parker	do	do	166				
do 30.	do	do	do	213				
do 31.	J. Wright	do	do	187				
April 5.	J. Parker	do	do	487				
do 10.	Jas. Wright	do	do	375				
do 11.	D. McRae	do	Vancouver	200				
do 12.	J. Parker	do	Victoria	75				
do 12.	do	do	do				2	
do 14.	do	do	do	150				
do 18.	do	do	do	199				
do 20.	do	Oregon	do	200				
do 20.	Jas. Wright	do	do	189				
do 22.	J. Parker	do	do	395				
do 23.	C. Spratt	California	do				1	
do 26.	J. Wright	Oregon	do	401				
May 3.	J. Parker	do	do	200				
do 4.	J. Gosnell & Co.	Washington	do				1	
do 11.	Jas. Wright	Oregon	do	211				
do 12.	T. A. Barlow	do	do				2	
	Carried forward			13,208	23		36	

Department of Agriculture.

ANNUAL REPORT of Inspections of Live Stock at Victoria, B.C., for the year ending
31st October, 1894, by M. G. Blanchard, V.S.—Continued.

Date Imported.	Name of Importer.	Where from.	Destination.	Sheep.	Cattle.	Hogs.	Horses.	Mules.
1894.	Brought forward.....			13,208	23		36	
May 12.	J. Parker	Oregon	Victoria	357				
do 12.	J. McIntosh	do	Vancouver.	212				
do 16.	Jas. Wright	do	Victoria	643			1	
do 20.	J. McIntosh	do	Vancouver.	112				
do 20.	J. Parker	do	Victoria.	230				
do 23.	Chas. Jolly	Washington	Manaimo.				4	17
do 23.	B. French	do	do				11	11
do 24.	M. M. Teater	do	Victoria.				1	
do 24.	Jas. Wright	Oregon	do	152				
do 25.	T. A. Barlow	do	do				2	
do 25.	J. Parker	do	do	202				
do 26.	Capt. Myers	do	do		1			
do 26.	Capt. Irving	do	do				2	
do 28.	Jas. Wright	do	do	630				
June 1.	do	do	do				1	
do 3.	R. Porter & Sons.	Washington	do		15			
do 5.	J. Parker	Oregon	do	478				
do 5.	J. McIntosh	Washington	Vancouver.		9			
do 7.	J. Parker	Oregon	Victoria.	602				
do 10.	R. Porter & Sons	Washington	do		36			
do 12.	do	do	do		20			
do 12.	J. Wright	Oregon	do	419				
do 12.	D. Burns	Washington	Vancouver.		44			
do 14.	B. Van Volkenburgh	do	Victoria		12			
do 15.	J. S. McMillan	do	do	22				
do 16.	J. Parker	Oregon	do	300				
do 16.	R. Porter & Sons.	Washington	do		64			
do 16.	J. Parker	Oregon	do	412				
do 19.	— Ash	Washington	do				1	
do 20.	L. Goodacre	do	do	20				
do 20.	do	do	do	20				
do 22.	A. Taylor	do	do				2	
do 22.	W. McKeon, jr.	Oregon	do				1	
do 23.	J. Wright	do	do	415				
do 28.	J. McIntosh	do	Vancouver.	325				
do 28.	L. Goodacre	do	Victoria.	326				
do 28.	R. E. Davis	Washington	do	77				
do 30.	— Metcalfe	do	do	18				
July 3.	R. E. Davis	do	do	30				
do 3.	R. Porter & Sons	Oregon	do	15				
do 4.	— King	Brit. Columbia	do				1	
do 6.	L. Goodacre	Washington	do	18				
do 7.	R. Porter & Sons	do	do	31				
do 10.	do	do	do	67				
do 11.	Jas. Wright	Oregon	do	117				
do 11.	B. C. Cattle Co.	Washington	do	70				
do 12.	L. Goodacre	Oregon	do	359				
do 12.	J. McIntosh	do	Vancouver	300				
do 13.	L. Goodacre	do	Victoria.	90				
do 13.	Jas. Wright	do	do	410				
do 14.	R. Porter & Sons	Washington	do	25				
do 18.	Jas. Wright	Oregon	do	440				
do 24.	do	do	do	372				
do 24.	J. Cameron	Washington	do				1	
do 25.	L. Goodacre	Oregon	do	178				
do 25.	J. McIntosh & Co.	do	Vancouver	150				
do 26.	Sella Circus	U. States	U. States				50	8
do 26.	B. Van Volkenburgh	Oregon	Victoria.	122				
do 29.	F. L. Sullivan	Washington	do				1	
do 31.	J. Anderson	Oregon	do	329				
Aug. 2.	Jas. Wright	do	do	437				
do 4.	A. B. Noyes	Washington	do				2	
	Carried forward.			22,740	224		117	36

ANNUAL REPORT of Inspections of Live Stock at Victoria, B.C., for the year ending
31st October, 1894, by M. G. Blanchard, V.S.—*Concluded.*

Date Imported.	Name of Importer.	Where from.	Destination.	Sheep.	Cattle.	Hogs.	Horses.	Mules.
1894.	Brought forward.....			22,740	224		117	36
Aug. 5.	L. Goodacre	Oregon	Victoria	407				
do 7.	Ralph Bowen	Washington	do				2	
do 7.	Jas. Jackson	Oregon	do	110				
do 9.	Jas. Wright	do	do	438				
do 14.	L. Goodacre	do	do	192				
do 18.	Jas. Jackson	do	do	105				
do 19.	C. Butler	do	do	101				
do 22.	L. Goodacre	do	do	597				
do 23.	J. Brown	Washington	do				1	
do 26.	J. Wright	Oregon	do	398				
do 28.	J. Hyland	Washington	do				1	
Sept. 4.	L. Goodacre	Oregon	do	417				
do 5.	R. E. Davis	Washington	do	23				
do 5.	Jas. Jackson	Oregon	do	110				
do 6.	J. Crawford	Washington	do				1	
do 7.	H. Cheeney	do	Vancouver				1	
do 8.	Jas. Wright	Oregon	Victoria	60				
do 11.	S. McDonald	Washington	do				1	
do 11.	F. W. Kyler	do	do				1	
do 11.	J. D. Rainey	do	do				1	
do 11.	C. W. Arland	do	do				1	
do 11.	F. Wickenshaw	do	do				1	
do 11.	J. C. Charlton	do	do				1	
do 11.	J. E. Johnson	do	do				1	
do 11.	F. E. Davis	do	do				1	
do 12.	L. Goodacre	Oregon	do	419				
do 13.	A. B. Noyes	do	do	220				
do 14.	Jas. Wright	do	do	392				
do 18.	L. Goodacre	do	do	400				
do 18.	Jas. Jackson	do	do	100				
do 21.	L. Goodacre	do	do	400				
do 23.	J. Parker	do	do	109				
do 26.	Jas. Wright	do	do	150				
do 28.	Jas. Jackson	do	do	107				
Oct. 2.	Jas. Wright	do	do	196				
do 2.	A. J. McDonald	Washington	do				1	
do 3.	Jas. Jackson	Oregon	do	97				
do 3.	R. Breeze	Washington	do				1	
do 9.	J. C. Schermerhorn	do	do				2	
do 10.	J. Parker	Oregon	do	300				
do 11.	R. E. Davis	Washington	do	8				
do 11.	Jas. Wright	Oregon	do	402				
do 12.	Jas. Jackson	do	do	100				
do 19.	L. Goodacre	do	do	208				
do 20.	Jas. Jackson	do	do	197				
do 25.	R. Porter	do	do				1	
do 25.	Andrew Fitz	Washington	Vancouver				7	
do 26.	Geo. McRae	Oregon	Victoria		37			
do 30.	Jas. Wright	do	do	394				
do 31.	Old Kentucky Co.	do	Transit				1	
				29,897	261		144	36

M. G. BLANCHARD, V.S.,
Inspector.

Department of Agriculture.

No. 9.

REPORT ON PICTOU CATTLE DISEASE.

(G. TOWNSEND AND T. CHALMERS.)

NEW GLASGOW, N.S., 1st November, 1894.

SIR,—We have the honour to forward herewith tables showing the number of cattle certified by us for slaughter during 1894, afflicted with Pictou cattle disease, the owners' names, date of slaughter and amount of compensation awarded.

We understand that Prof. McEachran has reported to you on the disease itself during the year, and we therefore simply render details of our operations.

We have the honour to be, sir,
Your obedient servants,

GEO. TOWNSEND.
T. CHALMERS.

The Honourable
The Minister of Agriculture,
Ottawa.

QUARANTINE operations for Pictou Cattle Disease during the Year 1893, by
Inspectors Geo. Townsend and T. Chalmers.

Date.	Owner's Name.	Address.	Month.	Number Killed.	Number Male.	Number Female.	Amount paid.
1893.							\$ cts.
Nov. 2.	Angus McDonald	Dinnaglass	Nov.	3		3	15 00
do 3.	Alex. McDonald	Doctor's Brook	do	1		1	10 00
do 8.	Donald Sutherland	New Glasgow	do	1		1	10 00
do 8.	Dan. Campbell	Antigonish	do	1		1	10 00
Dec. 1.	Grant Robertson	Churchville	Dec.	1		1	10 00
do 8.	Angus McDonald	Malignant Cove	do	1		1	7 00
do 11.	Angus P. McDonald	W. Merigonish	do	1		1	5 00
1894.							
Jan. 21.	Robt. P. P. Fraser	McLennan's Brook	Jan.	1		1	10 00
Feb.	T. D. McDonald	Plymouth Road	Feb.	1		1	10 00
Mar. 3.	John Murray	do	March	1		1	10 00
do 10.	Simon Murray	Granton	do	1		1	10 00
do 20.	John McGilvrey	McAra's Brook	do	1		1	10 00
do 30.	R. W. McGilvrey	Bailey's Brook	do	1		1	5 00
do 30.	Hugh McGillivray	do	do	1		1	5 00
do 31.	M. Cashen	Antigonish	do	1		1	5 00
April 2.	Alex. McDonald	McAra's Brook	April	1		1	10 00
do 5.	Martin Welsh	Fairmont	do	2			10 00
do 12.	Patrick Delaney	Egg Mount	do	1			7 00
do 26.	Angus J. T. McVicar	W. Merigonish	do	1		1	10 00
do 28.	Martin Welsh	Fairmont	do	1			5 00
May 14.	M. Cashen	Antigonish	May	1		1	7 00
do 20.	Mrs. Collingwood	Fisher's Grant	do	1		1	10 00
do 22.	Alex. McDonald	Drs. Brook	do	1			7 00
do 24.	W. G. Johnstone	McLennan's Brook	do	1		1	10 00
do 24.	Ronald McDonald	Antigonish				1	10 00
do 30.	Martin Welsh	Fairmont		1			5 00
do 31.	Aurthur Johnstone	Granton		1		1	10 00
June 2.	Donald Cameron	Sutherland's River	June	1		1	5 00
do 4.	Alex. McDonald, sen	McAra's Brook	do	2		2	12 00
do 5.	John Leadbetter	Thorburn	do	1		1	10 00
do 5.	Alex. T. Halliday	Green Hill	do	1		1	10 00
do 7.	Mrs. Margret Mitchell	French River	do	1		1	10 00
do 8.	W. H. Kirk	Antigonish	do	1		1	10 00
do 9.	John Murray	Plymouth Road	do	1		1	10 00
do 10.	Capt. Geo. McPherson	Pictou Landing	do	1		1	10 00
do 10.	Alex. T. Halliday	Green Hill	do	1		1	7 00
do 12.	Wm. Sutherland	W. Merigonish	do	1		1	10 00
do 12.	Kenneth McMillan	Eureka		1		1	10 00
do 12.	Daniel K. McDonald	Westville		1		1	12 00
do 15.	Mrs. Collingwood	Fisher's Grant		1		1	10 00
do 16.	J. C. Munro	Thorburn		1		1	15 00
do 16.	Wm. McKenzie	Fisher's Grant		1		1	5 00
do 21.	John Murray	Plymouth Road		1		1	10 00
do 21.	John Robertson	Churchville		1		1	10 00
do 22.	Mrs. Ellen Robertson	do		1		1	10 00
do 23.	M. Cashen	Antigonish		1		1	10 00
do 25.	John Robertson	Churchville		1		1	10 00
do 26.	Rod. W. McGillivray	Bailey's Brook		1		1	7 00
do 26.	Archibald McDougall	Knoydart		1		1	11 00
July 1.	Rod. Robertson	Churchville	July	1		1	10 00
do 1.	Alex. Campbell	Westville	do	1		1	10 00
do 2.	J. J. Marshall	do	do	1		1	10 00
do 2.	Hugh McIntosh	McLennan's Brook	do	1		1	10 00
do 3.	D. A. McDonald	Ponds	do	1		1	10 00
do 5.	Angus McDonald	Bailey's Brook	do	1		1	10 00
do 6.	John McDonald	Clydesdale	do	1		1	10 00
do 7.	H. J. Townsend	New Glasgow	do	1		1	10 00
do 8.	Arch. Lamont	Glenshee	do	1	1		5 00
do 9.	Alex. McDonald	Big Marsh	do	1		1	10 00
do 10.	Mrs. Alex. McDonald	Arisaig	do	1		1	10 00
do 10.	John D. McGillivray	Bailey's Brook	do	1		1	10 00
do 13.	Colin Ross	Maryvale	do	1		1	10 00
do 16.	Wm. McPherson	Arisaig	do	1		1	10 00

Department of Agriculture.

QUARANTINE operations for Pictou Cattle Disease during the Year 1893, by
Inspectors Geo. Townsend and T. Chalmers.—*Concluded.*

Date.	Owner's Name.	Address.	Month.	Number Killed.	Number Male.	Number Female.	Amount paid.
1893.							\$ cts.
July 17.	John Colloch	Granton	July	1		1	10 00
do 18.	John Hingley	French River	do	1		1	10 00
do 19.	M. Cashen	Antigonish	do	1		1	10 00
do 20.	John McIntosh	Piedmont Valley	do	1		1	10 00
do 23.	Angus Cameron	New Glasgow	do	1		1	10 00
do 26.	James D. Robertson	Churchville	do	1		1	10 00
do 26.	Mrs. Ellen Robertson	do	do	1		1	10 00
do 27.	Rev. Wm. Stewart	McLennan's Brook	do	1		1	15 00
do 29.	T. D. McDonald	Plymouth Road	do	1		1	10 00
do 30.	Martin McDonald	Maryvale	do	1		1	10 00
Aug. 2.	Dan. A. McDonald	Big Marsh	Aug.	1		1	10 00
do 7.	Angus McIsaac	Maryvale	do	1		1	10 00
do 8.	F. Vacheresse	Plymouth Road	do	1		1	10 00
do 9.	Hugh McDougall	Maryvale	do	1		1	5 00
do 10.	Alex. T. Halliday	Green Hill	do	1		1	10 00
do 14.	Wm. McDonald	French River	do	1		1	10 00
do 15.	Mrs. Wm. Smith	New Glasgow	do	1		1	10 00
do 17.	John McDonald	Maryvale	do	1		1	10 00
do 18.	Mrs. Chas. McVicar	W. Merigonish	do	1		1	10 00
do 22.	John S. Fraser	Brookville	do	1		1	10 00
do 23.	Wm. McKenzie	Fisher's Grant	do	1		1	10 00
do 25.	Adam Mitchell	Blue Mount	do	1		1	10 00
do 27.	Duncan McKinnon	Lismore	do	1		1	10 00
Sept. 10.	Dan. W. McGillivray	Bailey's Brook	Sept.	1			7 00
do 9.	Donald McDonald	Point Betty	do	1	1		10 00
do 12.	Donald D. McPherson	McAra's Brook	do	1		1	10 00
do 14.	Dan. C. Campbell	Antigonish	do	1		1	5 00
do 30.	James Robson	Piedmont Valley	do	2		2	20 00
Oct. 21.	James Conn	Alma	Oct.	1		1	10 00
do 22.	Adam Mitchell	Blue Mountain	do	1		1	10 00

INSPECTED BY INSPECTOR THOS. CHALMERS, TRURO, N.S.

April 14.	John McInnes	Bay View, Pictou	April	1		1	
do 20.	Geo. Reddy	Pictou	do	1		1	
Sept. 18.	Wm. Leithhead	Logan's Tannery	Sept.	1		1	
do 20.	Wm. McKeam	Lyon's Brook	do	1		1	
do 25.	John Morrison	Pictou	do	1		1	
Oct. 1.	Duncan Kankine	Hardwood Hill	Oct.	1		1	
do 16.	Alonzo Myers	Logan's Tannery	do	1		1	

GEORGE TOWNSEND,
Veterinary Inspector.

New GLASGOW, N. S., 1st November, 1894.

No. 10.

REPORT OF CATTLE QUARANTINE OPERATIONS IN THE NORTH-WEST TERRITORIES.

(ROBERT EVANS, V.S.)

LETHBRIDGE, 1st November, 1894.

SIR,—I have the honour to submit my annual report for the twelve months ending 31st October.

After November 1st, 1893, no cattle were admitted to quarantine in this district and only a few horses came in.

On December 6th, acting under instructions received from Prof. McEachran, I started from Maple Creek to look after the sheep in that district, some flocks there suffering from scab. From that time till the present I have been continuously engaged in this work. Between my arrival at Maple Creek and Christmas I visited and inspected the flocks belonging to the following parties, viz. :—

James Dixon, Blair Bros., Quick and Martin, W. L. Nicol, at Mr. Parson's, William Brown, Covell and Hassett, Joseph Mutrie, A. Wallace, Olsen Bros., John Cumberland, Thomas Johnston, estate of J. Gourlay, Bertram, and Farr. I found scab existing in Mr. Brown's band, the lambs being badly affected. Joseph Dixon's had been herded with Mr. Brown's during the summer, but were dipped three times, the last time just before their removal. I could not find any traces of the disease in them, but kept them under surveillance until shearing time, when I pronounced them clean. Nicoll's were fat sheep and had suffered from the disease during the summer, had been dipped several times but were still suspicious. Scab developed later, but was energetically treated and no ill consequences were felt.

At Mr. Mutrie's I found that 600 sheep had been recently brought there from Nicoll's, those also had been dipped and were supposed to be clean. Here also the disease showed itself before spring, but without any serious losses.

Thomas Johnston's sheep also had the disease, were repeatedly dipped, the last time as late as December. To all appearance the work had been well done, but as far as I could observe the disinfection of the premises had not been so thorough. During the winter I visited this flock twice, and it was not until spring that the disease again manifested itself. The other flocks were all clean and I could not learn that they ever had been exposed to the contagion. Covill and Hassett's flock were, however, in such close proximity to Mr. Brown's diseased flock that I did not release them until late this season.

Between Christmas and January 1st, I visited the sheep (three flocks) in the Mormon colony. I found the sheep clean, but two of the bands were being wintered in sheds that had been used the previous winter and the disinfection did not appear to me satisfactory. Later inspections, however, proved that my fears in this case were groundless and towards the end of March I released them from quarantine restrictions. Early in January I inspected, near Medicine Hat, Mr. Peter Robertson's flock of 1,800, and found the disease existing and spreading rapidly. This flock had been dipped several times the previous summer, but with indifferent success. Under my advice mercurial ointment was used here with most gratifying results. I also inspected Mr. Walton's sheep and found them clean. I next visited the Little Plume Ranch Company, with about 5,000 sheep and found a very large number badly affected. I had some trouble arriving at a definite conclusion as to how or where this flock contracted the disease, Mr. Clarke, the manager, leading me to believe that it came from Robertson's, whose range is contiguous. I afterwards learn-

Department of Agriculture.

ed that some 1,100 lambs had been purchased from Mr. Nicol, in October, supposed to have been clean at the time, but I incline to the belief that those lambs were the cause of trouble.

Owing to the large number of sheep here and the advanced stage of the disease, together with the perfunctory treatment adopted, the losses were heavy.

I next inspected 1,200 sheep for the Lethbridge Sheep Company, whose ranch is near Irvine Station. Those also had been purchased from Nicol, were dipped after removal to Irvine, but gave evidence of recent scab, and the disease again reappeared during the winter. My next visit was to Walsh, where I inspected Mr. Nicol's 1,400, McElpin Bros., 1,200, and the Sarnia Sheep Company's 3,000. I found the disease existing in Mr. Nicol's and also in the Sarnia Company's; McElpin's were clean. During the winter Mr. Nicol's men fought the disease most successfully, using a carbolic acid dressing, but the Sarnia Company were not so fortunate. On my way on to Maple Creek I inspected, at Kincarth, 2,800 sheep for the C. A. C. & C. Co. and found them clean.

Shortly after my arrival in Maple Creek, I received instructions to go to Battleford to investigate a reported outbreak of scab in that district.

On my arrival at Battleford, I found the sheep were at Bourassa's, Jackfish Lake, and, in company with Dr. Pare, the owner of the sheep, drove out there. Those sheep were in a most pitiable condition. The weather was intensely cold; the whole flock was badly affected, and a great many of them almost wholly denuded of wool. Several had already died and more likely to follow. Those sheep had been purchased by Dr. Pare, in October, about 260 from one Senclair, of Saskatoon, and the other 200 from James Scott, of Qu'Appelle. They were driven from Saskatoon to Battleford, and in November driven out to the lake. Treatment was difficult owing to the extensive ravages of the disease and the severity of the climate. Vigorous measures, however, were adopted but with painful results, as more than 250 died either from the disease or the treatment.

On the arrival of Pare's sheep at Battleford, he sold one ram to L. R. Noel, which was taken to the Bresaylor settlement. I followed him up and found the disease well developed in the ram, and several of the ewes affected, but only slightly. Here again I advised treatment with mercurial ointment, and with very favourable results, no loss whatever occurring. I visited all the other small flocks in the settlement and found the sheep clean. I also inspected O. Forr's sheep, 200; Mahaffy & Clinkhill's 250, and David Latta's 300 in the Eagle Hills, and found them all healthy.

On my return from Battleford I interviewed Mr. Sinclair, and found that he had purchased sheep from Darke & Balderston, Regina, in 1892, that he had dipped them several times before selling to Pare, and that he had sold the small balance of his flock to E. J. Wooldridge, near Dundurn Station. I went out there and found his flock of 250 badly diseased, the contagion evidently coming from Sinclair. I advised him how to treat his sheep during the winter, and his loss was not very severe.

Coming on to Regina I endeavoured to trace up the sheep which had introduced the disease, and found that Darke & Balderston bought them from Philbrick, the man who brought in the original scabby band from Idaho, and a part of which he brought on to Regina, and sold to different parties there. I followed up this information and found the disease in the following flocks in the Qu'Appelle Valley, viz.:—Algernon Mort, 50; James Lauder, 36; Ralph Lee, 30; and Mrs. Lindsay Ewing, 9; and one south of Regina, A. Carruthers, 175; and the Western Milling Company in Regina, 7, which were at once slaughtered. The contagion in all these cases was distinctly traceable to the Philbrick sheep. Local treatment in those small flocks kept the disease fairly well under control until spring, when I returned and had them all dipped, and when I again saw them in June they were apparently cured. In the Maple Creek district active operations were commenced early in the spring, and I personally superintended the dipping of Mutrie's, Nicol's, Grant's (of the Sarnia Ranch), the Lethbridge Sheep Company, the Little Plume, Peter Robertson and others. I saw that the dip was properly prepared, the strength kept up and each animal kept in the solution from two to three minutes. In this lay the success

of the operations. I found the best results follow dipping early, and before shearing, which is easily accounted for, as the wool holds a large quantity of the dip, and the cool weather prevents a too rapid evaporation, and consequently the skin is thoroughly saturated. In May I returned to Battleford and found both Pare's and Noel's sheep almost well. I advised dipping again, which was done, and the sheep removed to clean ground, and I am of the opinion that there will be no further trouble in that locality. In September and October, Messrs. Gordon & Ironsides purchased several thousand sheep from around Medicine Hat, Walsh and Maple Creek for the English market. As many of these were taken from flocks that had been diseased, I assisted in each instance in selecting the sheep, and then personally superintended the dipping of all those sold and remained to see them placed on the cars. Quite recently I had Mr. Brown's flock dipped, and all the other lately affected flocks will be dipped before going into winter quarters, and most of them are going into entirely new and clean premises. It is almost too much to expect that the disease will not show itself in some flock again, but I do not anticipate much future trouble from it.

About the 1st October I received instructions to follow up and inspect a band of 3,500 sheep brought in from Montana by Mr. Berridge, and then on the road to Calgary. I at once started for Calgary and found the sheep near High River, where I had them driven for inspection. I found them clean and healthy.

On October 17th I inspected at Coutts, 1,010 sheep, brought in from Montana, by Wagner, Simms & Davis, and found them clean, and on the 19th I inspected at the same place 900 for J. G. Gordon, brought in from Montana and going to British Columbia. These, with 4 horses inspected for E. McAbre, constitute my inspections at the boundary. During the summer several car loads of sheep were shipped from Walsh to Winnipeg, and on each occasion I personally inspected the sheep before leaving and saw them placed on the cars, and on October 16th I inspected at Dunmore 200 fat sheep for A. Good, and destined for Winnipeg. No other sale or removal of sheep in the affected district was permitted since I commenced the work.

Since the above report was written the disease is reported as thoroughly eradicated.

I have the honour to be, sir,
Your obedient servant,

ROBERT EVANS, V.S.,
Quarantine Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

NOTE.—Since the above report was written the Department of Agriculture received intimation from Mr. Evans that the disease is thoroughly eradicated in the North-west Territories.

Department of Agriculture.

No. 11.

REPORT OF CATTLE QUARANTINE AT MANITOU.

(M. YOUNG, V. S.)

MANITOU, 6th November, 1894.

SIR,—I have the honour to forward this, my annual report of inspections at the different points under my charge. It is observable by the accompanying statement when compared with that of last year, that there has been an increase of upwards of 30 per cent in the number of immigrants entering Canada at these points, and also, that there has been more than a corresponding increase in the number of live stock imported, but I think it is quite within the mark to say that the number shown in this report would have been more than doubled but for the operations of the present quarantine regulations.

It is almost impossible to dispose of cattle in the districts of the United States from which immigration to Canada might most reasonably be expected, except at ruinous sacrifices. To many families it would be disastrous to come here without bringing at least a few milch cows, as in many instances they afford nearly their sole means of support, and it would scarcely be less disastrous to bring them so long as the present ninety days quarantine detention obtains.

A few head of cattle, principally milch cows, have been imported this year by incoming settlers, who, until their arrival here, were not aware of the existing regulations, but they were so fortunate as to secure temporary homes within the "two townships limit" and I have been able to quarantine their cattle within their own inclosures without entailing upon them burdensome expenses for food and care. Those we inspected at the expiration of the 90 days period were found to be in perfect health and were released.

I have the honour to be, sir,
Your obedient servant,

M. YOUNG, V. S.,
Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

DETAILED Report of Animals Inspected by M. Young, V.S., for the Year ending 31st October, 1894.

Date.	Name of Owner.	Where from.	Destination.	ANIMALS INSPECTED.					Where Inspected.	Remarks.
				Horses.	Mules.	Cattle.	Sheep.	Swine.		
1893.										
Nov. 11	R. J. Nelson	Grand Forks, Dakota	Glenboro', Man.	2					Manitou	Brought back from U. S. under chattel mortgage. Quarantined for 90 days.
do	G. Deaniel	Cavalier Co.	St. Léon do	2					Cartwright	Quarantined for 90 days.
do	R. Bramwell	do	Sec. 16, 1, 15, Man		5				Manitou	Cattle driven back into U. S. by N. W. M. P.
do	Jno. Berry	do	Manitou do	1					do	Brought back from U. S. under chattel mortgage. Raising quarantine on cattle end of 90 days.
do	J. B. Brandes	Langdon	Morden do	1					Wakopa	Quarantined, but afterwards seized by U. S. sheriff.
do	C. Guerin	do	Wakopa do	1					Manitou	
Dec. 29	J. Bissett	Cavalier Co.	Snowflake do							
1894.										
Jan. 1	J. Bissett	Cavalier Co., Dakota	Snowflake do	4					Manitou	
do	Almond A. Willard	Wyoming Ter., U. S.	Tp. 1, R. 7, W. Man	1					do	
Feb. 20	A. F. Paradis	St. Johns, Dakota	St. Alphonse do	1					Cartwright	
do	J. Butters	Milton	Lake Dauphin do	2					Manitou	
Mar. 6	Abram Derkson	Langdon	Tp. 1, R. 6, W. do	3					do	
do	Philip Scott	St. Johns	Wakopa do	1					Killarney	
do	Jas. Wall	Crystal	Clearwater do	2					do	
do	Margaret C. Cleveland	St. Johns	Wakopa do	3					Clearwater	
May 10	Robt. Baxter	do	Lens do	2					Killarney	
do	T. B. Kinnard	Rolla	Killarney do	1					do	
do	S. L. Brown	Nebraska, U. S.	Red Deer, N. W. T.	5	2				do	
June 14	C. H. Anes	Ft. Benton, U. S.	Killarney, Man	25					do	
do	Clifford Martin	Crystal, U. S.	Crystal City, Man	4					S. J 24, 1, 12	
July 29	Jas. Coulter	Crystal, U. S.	Crystal City, Man	4					Killarney	
do	Hv. Sullivan	Bismarck, Dakota	Neepawa do	3					do	
do	Jacob Attrell	do	do do	4					do	
do	Jno. Oleson	do	do do	3					do	
do	C. H. Anes	do	do do	4					do	
do	Mary Attrell	do	do do	11					do	
do	N. G. Nylander	do	do do	8					do	
do	D. D. Robertson	Gettysburg do	Minnedosa do	4					Crystal City	
do	Jno. Robertson	Aberdeen do	Crystal City do	4		4			Killarney	
do	Jno. Saretoun	St. Johns do	Lake Manitoba, Man.	2					do	
do	Jno. Chubb	Aberdeen do	Routhwaite do	2					do	
Aug. 21	Suste B. Allen	St. Johns do	Wakopa do	3					do	Cattle quarantined for 90 days.

Department of Agriculture.

Sept. 20	Sim Arenowsky	South do	Wapella	do	3	do	Cattle quarantined for 90 days on N.W. 1/4 28, 2, 12. Raised quarantine end of 90 days.
do	22 Jas. McConnell	Nevada, U.S.	Gleuboro'	do	103	.....	do	.....
do	24 D. J. Garrison	North Dakota	Cartwright	do	3	.....	do	.....
Oct. 19	D. Baxter	St. Johns, N. Dakota	Lena	do	1	.....	do	.....
do	24 Jas. Wall	Crystal do	Clearwater	do	5	.....	Clearwater	.....
do	24 D. D. Robertson	Aberdeen, S. Dakota	Crystal City	do	.....	.....	Crystal City	.....
do	29 Sid. Evans	Hanna, N. Dakota	Ruttianville	do	4	.....	Manitou.	.....
do	30 Colin McNair	St. Johns do	Wakopa	do	1	.....	Killarney	.....
do	30 J. J. Ross	do do	do	do	2	.....	do	.....
do	30 D. H. Green	do do	do	do	2	.....	do	.....
do	30 Jas. Green	do do	do	do	2	.....	do	.....

M. YOUNG, V.S., Inspector.

MANITOU, 5th November, 1894.

No. 12.

REPORT OF MAPLE CREEK CATTLE QUARANTINE STATION.

(J. L. POETT, V.S.)

MAPLE CREEK, 31st October, 1894.

SIR,—I have the honour respectfully to report for your information that the quarantine regulations under the supervision of the North-west Mounted Police Force of this district have been fully carried out during the past summer. A quarantine corral was built near the Ten Mile Crossing of Battle Creek, known as the quarantine grounds.

There is an abundance of good feed and water on the land, in fact, the Middle Fork Creek runs through the corral, as the accompanying drawing shows.

Two hundred and seventeen head of range cattle, the property of the C. A. C. Company were held for 90 days quarantine, at Crane Lake, in an inclosed section of the company's farm.

The order relating to the herding of these cattle at the above named place was, owing to special instructions, received by Supt. G. B. Moffatt, N.W.M.P., the officer in command of the Maple Creek district.

The cattle in question were inspected by me, and upon each examination, I found them in good condition, free from any contagious or infectious disease or any suspicion thereof.

After notifying the officer in command of the police in this district, of the above-mentioned fact, the cattle were released from quarantine after the usual detention of 90 days.

I would further respectfully add that 39 head of dairy stock were held at the quarantine grounds, near the Ten Mile Crossing.

These cattle came into the country with a settler from Montana, named Mr. Liedman.

At each of my inspections of these cattle, I carefully took their temperature thermometrically, which I found normal, and after 90 days' detention, they also will be released from quarantine, if found to be healthy.

The district over which I have veterinary supervision extends: East, to the town of Swift Current; west, to the town of Medicine Hat; south, to the international boundary line, and north to the forks of the Red Deer River.

Bands, both of horses and cattle, range over this vast district, and the regulations now in force, by which the professional inspections of cattle are properly carried out by duly qualified veterinary surgeons, serving in the veterinary department of the N.W.M.P., make it practically impossible for diseases of a contagious or infectious nature to exist in the western portion of the North-west Territories, without being immediately brought to the notice of the police authorities.

I would also state that animals crossing the international boundary line, likewise all settlers' effects are examined by me at the port of Maple Creek, and reports of the same are furnished to the acting collector of Customs, for this district.

A large number of beef cattle have lately been purchased from the Maple Creek district, aggregating in all about 1,400 head.

I am thoroughly convinced after many years' practice as a veterinary surgeon, both in this country and in Western Ontario, that pleuro-pneumonia does not, nor ever did exist in these Territories, and indeed it is a well established fact, amongst the members of the veterinary profession, and the ranches of this country generally, how singularly free the cattle of the North-west Territories are from diseases of a pneumonic type.

Department of Agriculture.

What the ranches really do occasionally loose cattle from, and that principally calves and yearlings, is either gastric tympanitis or acute dysentery, which diseases are induced principally, by the feeding upon luxurious wet grass that grows around the innumerable fresh water lakes dotting the prairies in many parts of this and other districts in the North-west Territories.

I would also state that large numbers of American cattle, which range in the vicinity of the boundary line, and are constantly endeavouring to cross to the Canadian side can only be kept back by the exertions of the different flying patrols of the North-west Mounted Police.

One hundred and fifty head of horses lately inspected here, and owned by Mr. Dickie, of Wyoming, will be located at or near the Bull Head Lake, south of Medicine Hat.

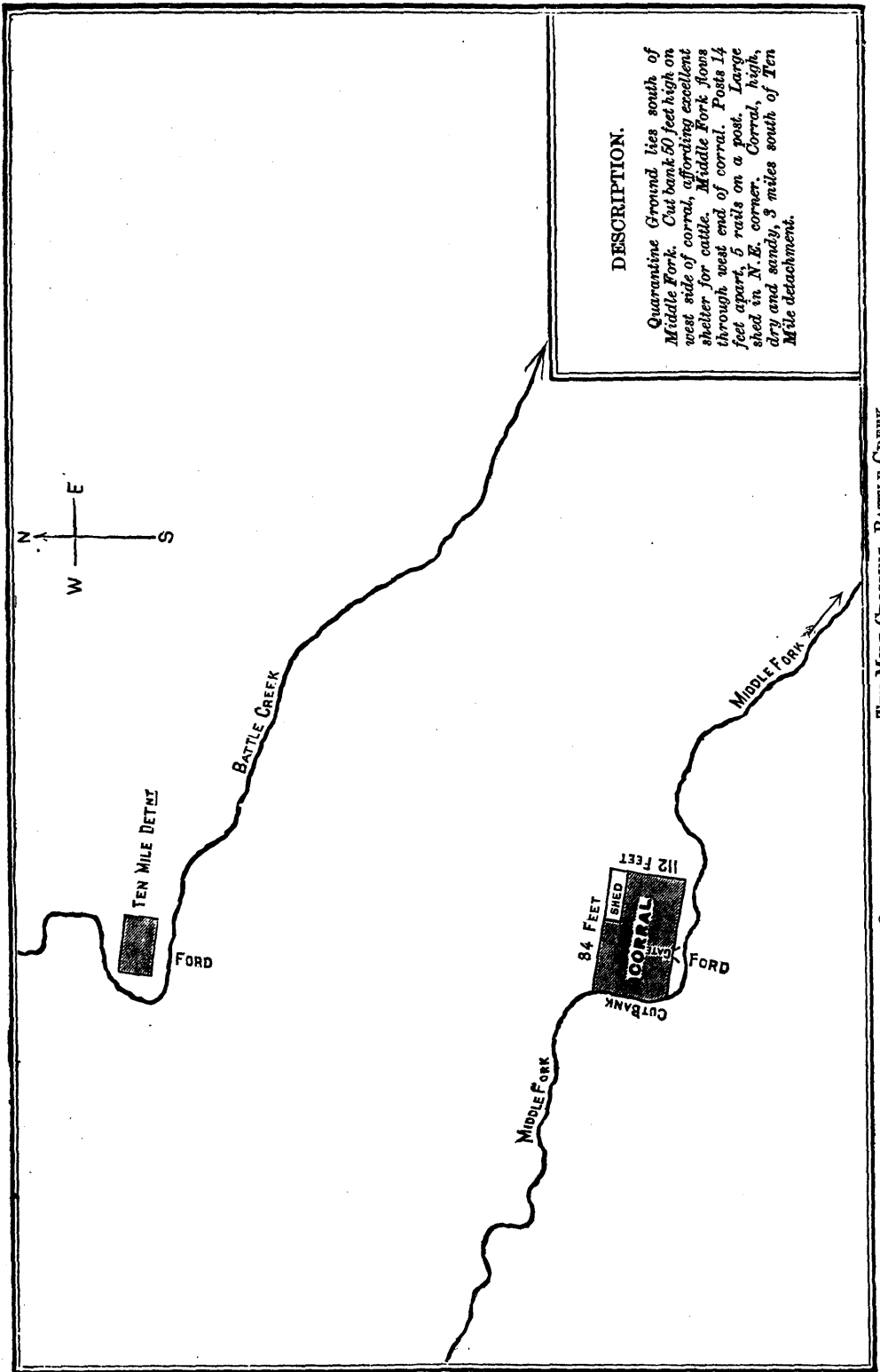
Before closing this report, I am pleased to inform you that chronic glanders, which prevailed to some extent amongst the horses on Mr. Oxerart's range, in the summer of 1893, is now completely stamped out, and no new cases have been reported this year.

I have the honour to be, sir,

Your obedient servant,

J. L. POETT., M.R.C.V.S.,
District Veterinary Surgeon.

The Honourable
The Minister of Agriculture,
Ottawa.



DESCRIPTION.

Quarantine Ground lies south of Middle Fork. Cut bank 50 feet high on west side of corral, affording excellent shelter for cattle. Middle Fork flows through west end of corral. Posts 14 feet apart, 5 rails on a post. Large shed in N.E. corner. Corral, high, dry and sandy, 3 miles south of Ten Mile detachment.

QUARANTINE CORRAL AT TEN MILE CROSSING, BATTLE CREEK.

Department of Agriculture.

No. 13.

REPORT OF FORT McLEOD CATTLE QUARANTINE.

(T. WROUGHTON, V.S.)

FORT McLEOD, 13th October, 1894.

SIR,—I have the honour to report as follows :—

On Saturday, the 18th August, 1894, I received a communication from the officer commanding McLeod district to inspect some horses belonging to Jos. Macdonald from United States via British Columbia. This was performed by me on the 19th August, when I inspected 172 head of horses.

Also on Monday, 3rd September, 1894, I received orders and inspected 41 head from Washington Territory via Fort Steele, B.C., the property of C. Hughston, Walter Archibald, James Cummins and Walter Furmas.

I have the honour to be, sir,
Your obedient servant,

T. H. WROUGHTON, D.V.S.,
Veterinary Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 14.

REPORT OF WOOD MOUNTAIN CATTLE QUARANTINE.

(F. D. McDONALD.)

WOOD MOUNTAIN, 31st October, 1894.

SIR,—I have the honour to report that I inspected during the past year, 47 horses entered here from Montana, U.S., by Acer St. Goddard; also one horse brought from Montana by Mr. John McGillis. These animals were passed by me, free from disease.

I have the honour to be, sir,
Your obedient servant,

F. D. McDONALD,
Veterinary Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 15.

REPORT OF INSPECTION OF PORTS OF CATTLE TRANSIT.

(T. A. ALLEN.)

LONDON, 1st November, 1894.

SIR,—It affords me much pleasure to submit my third annual report, especially so, because of the satisfactory manner in which the regulations have been carried out, during the past year.

Sarnia.

As may be seen by detailed statement, a large number of animals enter at this port, through the St. Clair tunnel. 858,310 animals going via the main line and entering the United States at St. Armand, Quebec, to St. Alban's; and 334,344 going via St. Thomas and Fort Erie. All of which have been inspected by Mr. Westell, in the Sarnia Tunnel yards.

Windsor.

All stock enter at this port by the G.T.R. and M.C.R. The latter bringing in 253,376 animals; and the former 683,642 head, all going via Chatham, Glencoe, St. Thomas and Fort Erie.

All stock are inspected on the boat on arrival at Windsor, and are not allowed to be unloaded until they are inspected. Dead or sick animals are not allowed to enter either here or at Sarnia.

Fort Erie.

Both the G. T. R. and M. C. R. yards are now fairly well inclosed. There are only two places where it is possible for cattle to enter, and a sharp look-out is kept at both these points to prevent cattle from entering. Fort Erie is the most important point on the road, as a great deal of shunting of both loaded and empty cars is done here, necessitating some delay.

Cleaning and Disinfecting Empty Cars.

Cars have been, with very few exceptions, well cleaned and disinfected. During the past year those not cleaned were stopped at Fort Erie and returned to Black Rock to be properly cleaned, &c., and were sent back to the United States as quickly as possible.

Stock Yards at Lyn.

These yards are well inclosed and thoroughly isolated, and are kept in first-class condition.

Three thousand and fifty-two horses have passed through, and only two hundred and sixty-one have been unloaded for feed, water and rest. It is certainly too long a run for horses from Chicago to Montreal without being unloaded, or to go without water.

A larger number of animals have been unloaded here during the year just ended than last year. About twelve thousand head of cattle, besides sheep, which creates quite a market at this point.

General Remarks.

Notwithstanding the fact that the railway officials appear desirous of carrying out the regulations, yet deviations occasionally occur of a minor character. The result in some instances is due to a lack of knowledge and forgetfulness on the part of the employees, and at other times, no doubt, are due to a rush in business. When pointed out any irregularities have been promptly amended.

On the whole, I think that all matters in connection with United States live stock passing through in transit are in a very satisfactory state, and bid defiance to all who might feel inclined to criticise.

The benefit which must necessarily result from the large amount of traffic through Canada is quite an item. In the year ending October 31st, 1893, over two million head were carried through from the west to the east. The past year about the same number, making about thirty-six thousand seven hundred and nineteen cars, or, allowing twenty cars to each train, making eighteen hundred and thirty-five trains in the year. Each train requires a conductor, who is also a live-stock guardian, two brakemen, one engineer and a fireman. These employees are fairly well paid, and are large consumers. The traffic is almost doubled by the empty cars being returned.

At the Lyn stock yards, during the months of February, March and April of the past year, between four and five thousand dollars were paid out to the farmers for feed.

Not in one single instance can it be successfully shown that disease of any kind has been communicated to Canadian live stock.

I have the honour to be, sir,

Your obedient servant,

THOS. A. ALLEN, V.S.,

Inspector of Stock in Transit.

The Honourable
The Minister of Agriculture,
Ottawa.

STATEMENT showing the number of Animals passing through Canada in 1894.

MUMBER OF ANINALS ENTERING AT WINDSOR.

	Cars.	Cattle.	Swine.	Sheep.	Calves.	Horses.	Total.
By M. C. R.	10,837	114,647	242,977	319,364	5,090	1,564	683,642
By G. T. R.	2,564	12,365	62,245	173,675	4,622	469	253,376
Totals.....	13,401	127,012	305,222	493,039	9,712	2,033	937,018

NUMBER OF ANIMALS ENTERING AT SARNIA.

Via Fort Erie.....	10,177	156,619	74,941	102,359	*	425	334,344
For St. Armand, Que.....	10,057	11,475	843,625	583	*	2,627	858,310
Totals.....	20,234	168,094	918,566	102,942	.....	3,052	1,192,654
Grand total.....	33,635	295,106	1,223,788	595,981	9,712	5,085	2,129,672

* Entered with cattle.

Department of Agriculture.

No. 16.

REPORT OF INSPECTOR OF STOCK AT WINDSOR, ONTARIO.

(JAMES BOWLER, V.S.)

WINDSOR, 1st November, 1894.

SIR,—I have the honour to submit to you my fourth annual report for the inspection ending 31st October, 1894, of American stock passing through Canada in bond, also imported into Canada (local) crossing at the port of Windsor by Canada Southern, via Michigan Central, Grand Trunk and Canadian Pacific, via Wabash and Detroit, Grand Haven and Milwaukee railways. I am pleased to say the stock have crossed here in a clean and healthy condition. I have also great pleasure in reporting that I have not heard of a single case of hog cholera in this locality during the past year. I have also to report that every precaution is taken in regard to the inspection of animals crossing at this port.

I have the honour to be, sir,
Your obedient servant,

JAMES BOWLER, V.S.,
Inspector of Stock.

The Honourable
The Minister of Agriculture,
Ottawa.

List of Stock inspected in 1894 by Drs. F. W. Mathews, R. F. Golden and James Bowler, Port of Windsor.

STOCK IN TRANSIT AND IN BOND.

Month.	Cars.	Cattle.	Swine.	Sheep.	Calves.	Horses.	Mules.	Deer.	Elk.
1893.									
November	1,221	10,815	38,900	28,324	490	65			
December	1,063	10,129	29,664	27,207	297	73			
1894.									
January	947	6,932	23,059	47,529	299	41			
February	1,026	7,648	16,436	59,929	369	215			
March	1,210	7,114	33,292	77,726	681	537			
April	1,126	8,764	21,244	61,588	1,055	324			
May	844	7,789	13,103	36,988	939	271			
June	738	9,903	12,121	8,169	1,180	290			
July	1,348	14,935	49,601	12,763	1,484	181			
August	980	10,901	23,498	25,476	817	111			
September	1,688	18,893	30,151	49,464	735	178			
October	1,424	13,190	34,891	57,876	673	148			
Total	13,615	127,013	325,960	493,039	8,919	2,434	49	3	9

List of Stock inspected in 1894 by Drs. F. W. Mathews, R. F. Golden and James Bowler, Port of Windsor—*Concluded.*

LOCAL STOCK FOR CANADA.

Month.	Cars.	Cattle.	Swine.	Sheep.	Calves.	Horses.	Mules	Deer.	Elk.
1893.									
November	5					12			
December	6					26			
1894.									
January	4			6		57			
February	1					1			
March	3					7			
April	2					3			
May	19			1,410		159			
June	12			859		108			
July	8					114			
August	24			3,455		20			
September	29			2,169		150			
October	8			336		45			
Total	121			8,235		702			

JAMES BOWLER, V.S.,
Inspector of Stock.

Department of Agriculture.

No. 17.

REPORT OF ASSISTANT INSPECTOR OF STOCK AT WINDSOR.

(R. F. GOLDEN, V.S.)

WINDSOR, 31st October, 1894.

SIR,—I have much pleasure in submitting for your information my fourth annual report as assistant inspector of stock in transit, &c., at this port of entry, for the year ending 31st October, 1894.

Hoping that the tables forming the report will meet with satisfaction,

I have the honour to be, sir,

Your obedient servant,

ROBT. F. GOLDEN, V.S.,

Assistant Inspector.

The Honourable
The Minister of Agriculture.
Ottawa.

MONTHLY Report of Stock shipped through Canada in Bond, via Port of Windsor, over the different railroads, for the Year ending 31st October, 1894.

Month.	Cars.	Cattle.	Swine.	Sheep.	Horses.
1893.	No.	No.	No.	No.	No.
November	422	4,039	14,516	11,833	30
December	250	1,389	11,910	10,449	33
1894.					
January	316	3,235	4,620	10,900	4
February	380	3,577	5,601	17,697	42
March	362	2,421	7,082	27,696	141
April	257	2,128	6,349	14,982	113
May	179	1,894	3,658	9,323	59
June	155	2,561	2,696	3,163	101
July	282	4,134	3,685	4,520	40
August	349	4,576	7,535	9,252	23
September	485	6,114	9,393	12,532	16
October	421	4,630	8,697	16,743	23
Total	3,878	40,638	85,742	149,090	625

MONTHLY Report of Stock imported for the Year ending 31st October, 1894.

Month.	Horses.	Sheep.
1893.	No.	No.
November	6	.....
December	6	.....
1894.		
January	5	.....
February	1	.....
March	3	.....
April	1	.....
May	40	1,410
June	1	500
July	3	.....
August	20	2,805
September	32	2,340
October	8	306
Total	126	7,361

ROBT. F. GOLDEN, V.S.,
Assistant Inspector.

WINDSOR, ONT., 31st October, 1894.

No. 18.

REPORT OF DELORAINE QUARANTINE STATION.

(JOSEPH DANN, V.S.)

DELORAINE, 31st October, 1894.

SIR,—In compliance with your directions I have the honour to submit my report of animal inspections for the year ending 31st October, 1894.

By referring to the detailed statement you will observe that there have not been any neat cattle or swine entered at this port of entry during the year, those inspected being horses and sheep.

I am glad to report that all the animals I inspected were free from disease.

I have the honour to be, sir,
Your obedient servant,

JOSEPH DANN, V.S.,
Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

DETAILED Report.

Date of Inspection	Name of Importer.	Whence Imported.	Horses.	Cattle.	Sheep.	Swine.
1894.			No.	No.	No.	No.
May 9...	H. Laird.....	Minnesota.....	2	.....	.....	.....
June 28...	George Hay.....	Bismark, Dakota.....	2	.....	.....	.....
Sept. 8...	Samuel Leach.....	Botteneau do.....	1	.....	.....	.....
do 14...	E. Gagnon.....	Lordsburg do.....	2	.....	.....	.....
Oct. 3...	A. J. McDonald.....	Botteneau do.....	.....	.....	800	.....
do 9...	H. Swanson.....	do do.....	4	.....	.....	.....
	Total.....	.....	11	.....	800	.....

JOSEPH DANN, V.S.,
Inspector.

Department of Agriculture.

No. 19.

REPORT OF EAST KOOTENAY CATTLE QUARANTINE.

(CHARLES CLARKE.)

FORT STEELE,
EAST KOOTENAY, B. C., 6th November, 1894.

SIR,—In compliance with your request, I have the honour to submit a report of my work for the year, as Veterinary Inspector, at this outpost.

I inspected 141 head of horses, principally owned by mining prospectors from the United States and in all cases found them remarkably healthy and entirely free from contagious disease.

On the 15th of February, 1894, I inspected three head of cattle, viz., one cow and two steers, and found them healthy; they were smuggled into this district from the United States.

No settlers with live stock have entered this outpost during the season.

I am pleased to state that we have no disease among stock of any kind in this valley of an infectious or contagious character.

I have the honour to be, sir,

Your obedient servant,

CHARLES CLARK,

Sub-Collector of Customs.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 20.

REPORT OF LYN STOCK YARDS.

(WILLIAM STAFFORD, V. S.)

LYN, 31st October, 1894.

SIR,—I have the honour herewith to submit to you my annual report for year ending October 31st, 1894, relating to American stock unloaded in the Lyn yards for the purpose of feed, water and rest.

Official regulations concerning the transportation of American stock have been strictly carried out. The yards are always kept in a good state of repair. No Canadian cattle are allowed to come in contact with the yards. All animals dead on arrival here have been buried within the isolated yards under my direction. There were 835 cars, 13,855 head of cattle; 13 cars, 261 horses, and 7 cars, 1,100 head of sheep, at the station this year, all of which were unloaded, fed and watered.

I have the honour to be, sir,
Your obedient servant,

WILLIAM STAFFORD,
Guardian Lyn Stock Yards.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 21.

REPORT ON TRANSIT OF U. S. LIVE STOCK.

(L. SLATER, V.S.)

St. THOMAS, 31st October, 1894.

SIR,—I beg leave to forward my fourteenth annual report on the transportation of United States live stock in transit and in bond from Windsor to East Buffalo by the Michigan Central, Canada division, also by the Grand Trunk loop line, southern division from Windsor to East Buffalo, and also from Sarnia to Glencoe, via King's Court branch and east by the loop line to East Buffalo. All trains stop at St. Thomas for the purpose of exchanging engines, and to examine rolling stock and take on fresh crews of trainmen before proceeding east.

Michigan Central, Canada Division.

CATTLE.—This company has been carrying United States cattle for export through by this route in large numbers during the last twelve months, very successfully, without accident, in cars well appointed for the work, all cars being fitted with air-brakes and patent couplings, and carrying sixteen fat cattle in each car, said cars being owned and operated altogether by what is know as the M. C. R. and N. Y. C. & H. R. R. live stock cars.

HOGS.—United States live hogs pass through in transit by this route in cars with from ninety to one hundred hogs to the car; said cars are fitted with patent couplings and air-brakes.

SHEEP.—United States sheep pass through in transit by this route in double deck cars mostly, and the cars carry about one hundred and twenty sheep to the car, said cars are equipped in the same manner as the cars that carry United States cattle.

HORSES.—Horses in transit and in bond by this route pass through in horse-palace cars with a capacity of twenty-two stalls, and carrying one horse in each stall.

LIVE STOCK, MIXED.—Under this head come cattle and hogs and sheep and hogs and some calves, all in the same car, and shipped to eastern markets for butchers.

SUPPLIES.—Live poultry cars, for the purpose of carrying live poultry, have very much improved during the last two years; said cars are all fitted up with wire crates to hold two dozen fowls to the crate, said cars carrying eight tons when loaded, and are equipped as other live stock cars, and pass through on the same trains.

Other animals shown on annexed table have passed through in transit and in bond in well equipped cars and without accident.

Live Stock Trains Stopping at St. Thomas.

All trains carrying United States live stock by this route from Windsor to East Buffalo, on arrival at the St. Thomas yards, are promptly examined by the car examiners, and locomotive engines exchanged, and fresh trainmen take charge, and the train proceeds on its journey; said examination of cars occupy about thirty minutes.

Isolation.

All trains carrying United States live stock are kept isolated from other trains while stopping at the St. Thomas yards for examination and exchange of engines, and the animal droppings that may fall from the cars while standing here are all carefully gathered up and destroyed daily.

The railway companies have been doing a very successful business in the transportation of United States live stock in transit and in bond, during the twelve months ending the 31st October, having hauled one thousand six hundred and two trains, carrying live stock without an accident, and they observed all the restrictions as appointed by the department in a satisfactory manner under my inspection.

Grand Trunk Loop Line, Southern Division—Cattle.

The Grand Trunk Railway Company are carrying United States cattle through by routes centering in St. Thomas, viz., from Sarnia and from Windsor in what is known as stable cars, said cars are well appointed with water troughs and racks to put hay in for the cattle while in transit, and are equipped with air brakes and patent couplings and carry upon the average sixteen fat cattle to the car, and twenty-four cars to make up a train.

Hogs from the United States by this route are mostly carried in the old style of live stock cars, but fitted with all the latest equipments and come from Windsor and also from Sarnia to St. Thomas, and average 95 hogs to the car. They pass through with other live stock in transit.

Sheep by this route are carried in double deck cars to a large extent. There have not been so many sheep passing as formerly, but all have passed safely and without accident.

Live stock mixed, cattle and sheep and hogs, and sheep with some calves, all mixed in the same cars are also carried. The annexed table shows a large number of cars of this kind of live stock passing through by this route during the year on trains with other live stock. This kind of live stock is en route to eastern markets for butchers' supplies.

Live Poultry.

This appears to be a favourite route for live poultry. It comes more direct through by the tunnel and via King's Court branch and Glencoe, and east through St. Thomas, and is handled with despatch and in cars improved especially for the shipping of live poultry, fitted with crates to carry two dozen fowls in each, and the capacity of the cars to carry 18,000 pounds.

Examination of Trains.

All trains carrying United States live stock by this route stop in the railway yards at St. Thomas, for the purpose of exchanging engines and examining rolling stock and fresh crews take charge of the trains from Windsor, and said trains proceed east to Buffalo. Live stock trains from Sarnia via King's Court branch and Glencoe to St. Thomas do not exchange engines or crews at the railway yards here, but the rolling stock is examined before it can proceed: said examination takes forty-five minutes.

Isolation.

All trains carrying United States live stock while stopping in the railway yards at St. Thomas to examine rolling stock and exchange engines are well isolated from other trains and passengers, and all animal droppings falling from the cars while standing in the yards here are gathered up and destroyed so as to prevent contagion.

Trains.

The number of trains carrying United States live stock from Sarnia via King's Court branch and Glencoe and St. Thomas, is 1,064; from Windsor, 661, making a total of all trains stopping 1,725.

I have telegraphic notice of all live stock trains leaving Windsor on the Michigan Central Canada Division, and also on the Grand Trunk Loop Line Southern Division leaving Windsor and Sarnia, and am thereby able to guard said trains while stopping at this point and passing from west to east Buffalo, and thus enabled to

Department of Agriculture.

see that all the regulations are carried out as appointed for and agreed on between the Department of Agriculture and the railway companies carrying United States cattle through Canada.

Michigan Central Canada Division.

Local live stock are gathered in at this point on the main line as far west as Essex and from Cartwright on the St. Clair branch for shipment to Toronto and Montreal. This live stock is shipped in local cars and gathered in to St. Thomas on local trains and transferred from the Michigan Central Canada Division to the Canadian Pacific *en route* to Toronto and Montreal.

Isolating the local live stock business is entirely separate from the live stock passing through in transit and in bond at this point.

Grand Trunk Loop Line, Southern Division.

Local live stock gathered in from the district around St. Thomas has been forwarded from this port to Toronto and Montreal via Glencoe and east on the main line of the Grand Trunk Railway; said live stock is shipped in local cars used for this business only, and is isolated from United States live stock passing east by this route.

Local live stock to Buffalo.

Lambs to Buffalo from points west of St. Thomas gathered in from the counties of Essex, Kent and Elgin, and all along the main line, and from the St. Clair branch from Cartwright and other stations, all the way down to St. Thomas, and also from stations on the Canadian Pacific, are forwarded to Buffalo by this route in local cars used for this business only. Grand Trunk loop line, southern division, have also gathered in to St. Thomas' yards a number of cars of lambs from points west of St. Thomas for forwarding to Buffalo. There is a large business done in the shipment of lambs from this district during the months of September, October and November, and the two following months, all of which is shown in the annexed table under this head.

West Bound live stock.

West bound live stock by this route from New York and Eastern Points to the Western States, and a few cars of horses from local points in Canada, also a few cars of sheep shipped west for breeding purposes, all of which is shown in the annexed table.

The management of the United States live stock in transit and in bond and stopping at the port of St. Thomas to exchange engines and examine rolling stock on the Michigan Central, Canada division, and also on the Grand Trunk loop line, southern division, railway yards here has been carried on in a very systematic manner, so as to insure the safety of the animals in transit, and all animal droppings that might fall from the cars during the time the trains are standing in the railway yards here, have been carefully gathered up and destroyed by servants of the several railway companies here, and empty live stock cars returning back to the west by these routes are all carefully cleaned and disinfected before returning, and isolated from the other business, so as to guard against the chance of contagion.

The weather has been excellent during the greater part of the year, with the exception of one snow storm on the 12th day of February, which blockaded the railway tracks and made it unfavourable for the rapid transportation of United States live stock for two days. The balance of the year we had very good weather, and have handled a large number of trains without an accident during the whole year.

I have the honour to be, sir,

Your obedient servant,

L. SLATER,

Cattle Guardian.

EAST BOUND.

TABLE showing the number of Cars of each kind of Live Stock.

Date.	Company.	Cattle.	Hogs.	Sheep.	Horses.	Live Stock, mixed.	Live Poultry.	Mules.	Calves.	Elks.	Live Stock & Household Goods.	M. C. R., C. Div.	G. T. R., L. L. S., Div.	Total.
1893.														
Nov. 30	M. C. R., C. Div. . . .	517	218	65	14	128	8	1				954		
do 30	G. T. R., L. L., S. Div	654	88	158	3	271	15						1,189	2,143
Dec. 31	M. C. R., C. Div . . .	525	214	71	11	92	3					916		
do 31	G. T. R., L. L., S. Div	588	80	135	2	199	8						1,012	1,928
1894.														
Jan. 31	M. C. R., C. Div. . . .	359	137	184	8	124		1				813		
do 31	G. T. R., L. L., S. Div	720	54	124	2	211	4						1,115	1,928
Feb. 28	M. C. R., C. Div . . .	401	94	225	13	86	3		1			823		
do 28	G. T. R., L. L., S. Div	680	43	180	11	120	2				1		1,037	1,860
Mar. 31	M. C. R., C. Div . . .	350	109	309	36	132	1				1	938		
do 31	G. T. R., L. L., S. Div	779	68	212	14	117	1						1,191	2,129
April 30	M. C. R., C. Div. . . .	449	93	193	22	149			3		1	910		
do 30	G. T. R., L. L., S. Div	868	70	169	11	139	2						1,259	2,169
May 31	M. C. R., C. Div. . . .	409	67	88	21	77						662		
do 31	G. T. R., L. L., S. Div	832	48	99	3	91	2						1,075	1,737
June 30	M. C. R., C. Div. . . .	537	76	14	16	59						702		
do 30	G. T. R., L. L., S. Div	820	36	30	8	100							994	1,696
July 31	M. C. R., C. Div. . . .	828	342	29	19	71	7	2	8			1,306		
do 31	G. T. R., L. L., S. Div	356	24	51	4	117							552	1,858
Aug. 31	M. C. R., C. Div. . . .	477	155	59	11	117	3					822		
do 31	G. T. R., L. L., S. Div	928	40	80	2	143	1						1,194	2,016
Sept. 30	M. C. R., C. Div. . . .	877	155	130	15	208	6		1			1,392		
do 30	G. T. R., L. L., S. Div	776	124	184	5	235	14						1,337	2,729
Oct. 31	M. C. R., C. Div. . . .	649	198	198	8	203	6				3	1,265		
do 31	G. T. R., L. L., S. Div	713	149	222	4	272	17						1,377	2,642
		15,092	2,682	3,209	262	3,461	103	4	13	3	6	11,503	13,332	24,835

L. STATER,
Cattle Guardian.

Department of Agriculture.

REPORT of Miscellaneous Shipments of Local Live Stock from St. Thomas to Montreal and to Toronto by the Grand Trunk Railway, and from Points east and west of St. Thomas on the Grand Trunk Loop Line, Southern Division, and from the Michigan Central, Canada Division, west of St. Thomas, to Montreal and Toronto, via the Canadian Pacific Railway, showing the number of cars.

Date.	Company.	Montreal.				Toronto.					M.C.R.C. Div.	G.T.R., L.L.S. Div.	Total.
		Cattle.	Hogs.	Sheep.	Horses.	Cattle.	Hogs.	Sheep.	Horses.	L. Stock Mixed.			
1893.													
Nov. 30	M.C.R.C. Div.	1				10					11		11
1894.													
Jan. 31	M.C.R.C. Div.					1				1	2		2
May 31	M.C.R.C. Div.	3	1	*10		1				1	14		14
		4		*10	1	1	1			1	18		
June 30	M.C.R.C. Div.	1										1	19
do 30	G.T.R.L.L.S. Div.	12		2		9	4	1			28		
July 31	M.C.R.C. Div.	16				2						18	46
do 31	G.T.R.L.L.S. Div.	29	2	*31		19		1		1	89		
Aug. 31	M.C.R.C. Div.	7	1	6		9		2					110
do 31	G.T.R.L.L.S. Div.	11	1	2	1	1					14		
Sept. 30	M.C.R.C. Div.	1		1		3						5	19
do 30	G.T.R.L.L.S. Div.	3	3		1	11	4			3	25		
Oct. 31	M.C.R.C. Div.	2		2		1		1				6	31
do 31	G.T.R.L.L.S. Div.												
		90	8	64	3	67	9	5		6	201	51	252

*United States.

LOCAL TO BUFFALO.

REPORT of the Miscellaneous Shipments of Local Live Stock to Buffalo on the Grand Trunk Loop Line, Southern Division, and on the Michigan Central Canadian Division, and from the Canadian Pacific Railroad at St. Thomas and via Michigan Central to Buffalo, showing the different kinds and the number of cars.

Date.	Company.	Local Lambs.	Local Horses.	M.C.R.C. Div.	G.T.R. L.L.S. Div.	Total.
1893.						
Nov. 30	M.C.R.C. Div.	15	1	16		
do 30	G.T.R.L.L.S. Div.	15			15	31
Dec. 31	M.C.R.C. Div.	39		39		
do 31	G.T.R.C. Div.	52			52	91
1894.						
Jan. 31	M.C.R.C. Div.	13		13		
do 31	G.T.R.L.L.S. Div.	6			6	19
Feb. 28	M.C.R.C. Div.	2		2		
do 28	G.T.R.L.L.S. Div.	1			1	3
Aug. 31	M.C.R.C. Div.	2		2		2
Sept. 30	M.C.R.C. Div.	13		13		
do 30	G.T.R.L.L.S. Div.	2			2	15
Oct. 31	M.C.R.C. Div.	18		18		
do 31	G.T.R.L.L.S. Div.	13			13	31
		191	1	103	89	192

WEST BOUND.

West Bound Shipments of Live Stock from through points in the Eastern States and from local points in Canada to the Western States by the Michigan Central, Canada Division, and Grand Trunk Loop Line, Southern Division Railroads, showing the number of cars of each kind.

Date.	Company.	Through Horses.	Local Horses.	Jackasses.	Through Sheep.	Local Sheep.	Live Stock and Household Goods.	Race Horses.	M. C. R. C. Div.	G. T. R. L. L. S. Div.	Total.
1893.											
Nov. 30	M. C. R. C. Div.....	15							15		15
Dec. 31	M. C. R. C. Div.....	6	1		1	1			9		9
1894.											
Jan. 31	M. C. R. C. Div.....	4	2						6		6
Feb. 26	M. C. R. C. Div.....	4							4		4
do 28	G. T. R. L. L. Div.....	1								1	5
Mar. 31	M. C. R. C. Div.....	6							6		6
Apl. 30	M. C. R. C. Div.....	9							9		9
May 31	M. C. R. C. Div.....	7						9	16		16
June 30	M. C. R. C. Div.....	5							5		5
July 31	M. C. R. C. Div.....	5							5		5
Aug. 31	M. C. R. C. Div.....	3	2			1			6		6
do 31	M. C. R. C. Div.....					1				1	7
Sept. 30	G. T. R. L. L. Div.....	10							10		10
Oct. 31	M. C. R. C. Div.....	5	1	2			2		10		10
		80	6	2	1	3	2	9	101	2	103

L. SLATER,
Cattle Guardian.

Department of Agriculture.

No. 22.

REPORT ON CATTLE SHIPMENTS FROM PRINCE EDWARD ISLAND.

(J. L. McMILLEN, V.S.)

CHARLOTTETOWN, 31st October, 1894.

SIR,—I have the honour to submit to you herewith my report of the work done at this station since my appointment.

During the months of February, March and April there were no animals imported or exported from this province.

In the month of May, I inspected 376 cattle, 61 horses and 190 sheep, exported from Charlottetown.

Also applied the tuberculin test to 11 cattle, the property of Mr. C. Coffin, four of which showed rise of temperature.

In the month of June, I inspected 76 cattle, 20 horses and 24 sheep, exported from Charlottetown.

In the month of July, I inspected 67 cattle, 35 horses and 194 sheep exported from Charlottetown.

In the month of August, I inspected 55 cattle and 34 sheep exported from Charlottetown.

In the month of September, I inspected 20 cattle, 5 horses and 138 sheep exported from Charlottetown.

In the month of October, I inspected 35 cattle, 40 horses and 138 sheep exported from Charlottetown.

I have the honour to be, sir,

Your obedient servant,

JAMES L. McMILLAN,
Veterinary Surgeon.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 23.

PRELIMINARY REPORT ON THE PICTOU CATTLE DISEASE.

(J. G. ADAMI, M.A., M.D.)

Late Fellow of Jesus College, Cambridge, Professor of Pathology in the McGill University, Montreal.

MONTREAL, 1st November, 1894.

SIR,—I have the honour to report that, having received instructions from the Minister of Agriculture, through Professor Duncan McEachran, I proceeded to Nova Scotia upon July 24th, 1894, and there spent the following five weeks, investigating the disease commonly known as the Pictou Cattle Disease. My investigations have since been continued in the Pathological Laboratory of the McGill University, and while they are as yet far from complete, I deem it wise to report upon the progress made thus far.

That I am enabled now to make this preliminary report is due to the cordial co-operation of Dr. George Townsend, the veterinary inspector at New Glasgow, and the most active aid of my laboratory assistant, Mr. E. W. Hammond. I have further to acknowledge the ready help rendered at all times by Mr. Cunningham, of Antigonish, the District Appraiser.

Upon arriving in the affected district, I found that this year the disease was most prevalent in the neighbourhood of New Glasgow and Antigonish; this being the case I made the former town my headquarters and there established a temporary laboratory. Dr. Townsend reported promptly to me each case as it occurred, and these I proceeded to examine until such time as the accumulation of material, together with the assurance that all cases gave similar results led me to believe that further examinations and autopsies were unnecessary. As a consequence I made careful study and inquiry into the history of fourteen clear cases of the disease, and made seven autopsies.

A consideration of the symptoms and of the post-mortem appearances, led to the conclusion that this is a disease of insidious onset, and relatively slow development. In favour of this view is:

1. The absence of fever, save as recorded by Dr. Wyatt Johnston in very rare cases.
2. The conditions of the liver in the most typical cases.
3. The condition of the ulcers in the true stomach in the same.

An acute disease, if of zymotic or infective nature (and I shall proceed to show that this is of that nature), is accompanied by high fever, save in those cases where death occurs with almost lightning like rapidity. Certainly that is not the case in the Pictou cattle disease. Here in the experience of Dr. Townsend the temperature tends to be rather below the normal for several days preceding death. And turning to the condition of the liver and fourth stomach, while in some cases the former may show simple cloudy and fatty degeneration, the latter shows ulcers that are recent, both indicating that death has occurred at a relatively early stage of the disease, in the majority of cases there is a very extensive development of well formed new fibrous tissue in the liver, a well marked cicatrisation of the numerous small gastric ulcers. In all probability months rather than weeks must have ensued before either of these pathological conditions could attain the extent seen in the majority of the cases. Thus then the Pictou cattle disease would seem to be in general of a chronic nature.

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The Cause of the Disease.

Despite the most conclusive experiments performed by Dr. William McEachran, the opinion still holds in the affected district that the large coarse composite weed, the *Senecio Jacoboea* or "Stinking Willy" is the direct cause of the disease. Were any additional proof wanting of the falseness of this theory I might point out:

1. That there are farms in Pictou and Antigonish counties, which for years have been overrun with the weed, but, notwithstanding, they are, and have always been, free from the disease.

2. That towards the south the area of prevalence of the weed extends for many miles beyond the area of incidence of the disease.

3. That I came across farms relatively free from the weed, on which cow after cow has succumbed.

4. That there are other regions of the Dominion where the weed has gained a foothold, and where, nevertheless, the disease is quite unknown.

The following facts are capable, it seems to me, of but one explanation.

1. That once the disease manifests itself on a given farm it slowly spreads, affecting animal after animal.

2. That while it is true that the disease is found in what can only be termed a very restricted area, embracing as it does only portions of two counties, the counties of Pictou and Antigonish, it is at the same time slowly extending its area of incidence, and this apart from any discoverable cause, save that of contact between or intermingling of animals of previously named and newly affected districts. Thus during the last twelve months it has spread more inland towards the Blue Mountain district.

3. That despite careful inquiry I have been unable to discover a single clear case of the independent origin of the disease on a farm, or in districts cut off completely from contact with animals in an affected district.

4. That although the affected area is relatively small, nevertheless in any given year the disease does not show itself over the whole of that area. There may be numerous cases at one end of the district, whereas at the other there are few or none. Thus, for instance, two years ago Pictou was a main centre of the disease; this year not a single case had until October been reported for some miles around Pictou, while Maryville and New Glasgow might be termed the two main centres.

All these facts can only be consistently explained by regarding the Pictou cattle disease as an endemic, or more correctly, an enzoötic malady, of zymotic or infectious nature, due that is to some germ which passes from a diseased animal to its previously healthy neighbour; a malady which, appearing on any given farm, affects one after another all the weaker or susceptible animals, so that in the course of a year or two none are left capable of infection. From this it follows that in one district the disease may be temporarily in abeyance, while in another, affected at a later date, the disease may be in active progress.

The Bacillus of Pictou Disease.

The results of a bacteriological study of the disease would seem to bear out the view here enunciated. In every animal examined post-mortem to this end there was discovered present, either in the tissues of the animal, or growing upon the sterilised media sown with a few drops of the blood, liver juice, pericardial fluid or bile, a minute bacillus, a minute rod-like body, having peculiar characters. Into an exact description of this microbe I shall enter more fully in a later report. It will, I trust, be held sufficient if now I state simply that the bacillus thus discovered is a member of a series of species characterized by great variation in length and general appearance according to the material upon which it is grown and the length of time for which it is grown. It is allied to the form known as the *bacillus proteus*. Thus grown upon broth rendered solid and gelatinous by means of agar-agar, or Japanese isinglass, and containing one per cent of glycerine, it forms at the end of eighteen hours small separate milk-white colonies, composed mainly of very short bacilli,

only a little longer than they are broad, while mixed with these are some that are perfectly spherical, undistinguishable from micrococci. If some of these be taken and grown upon simple alkaline broth, at the end of the same period the broth is cloudy and found to contain only a form which is much longer, a definite bacillus, and the bacilli are frequently, as in the tissues of the body, joined together in pairs. If again, small capillary tubes filled with bile or other body fluid containing the microbe, be left for some days sealed up at both ends, then in this condition, deprived of any large amount of oxygen, the microbes grow into long, loose chains of four to six members, and each member is yet longer and coarser than any found under the previous conditions. If a drop of this bile be now sown on the surface of a sterilized tube of glycerinated agar-agar, there is a return to the very short form. Dr. Martin, demonstrator of pathology, in McGill University, has further studied the mode of growth and confirms these observations. He finds also that grown upon gelatinised broth there is slow liquafactions of the medium at the end of ten to fourteen days. Growth upon potato would seem to depend upon the kind employed. In earlier attempts no growth was obtained. Recently, with other potatoes, small, yellowish cultures have been gained. On blood serum there is abundant growth, showing all forms from the coccus to the long chain.

Inoculation of the Bacillus.

Pure cultures of this bacillus inoculated into rabbits either under the skin into the veins or into the abdominal cavity, or again given to the animals along with their food led to the death of the animal at periods varying from thirty-six hours to three weeks. Eleven rabbits were so treated, and all died. The majority after a period of fourteen days; one alone survived more than two months. Another rabbit kept without inoculation in the company of the others died also within a month. From all these, save that which survived the longest, cultures of the bacillus were obtained. The conditions found at death were briefly,—some emaciation, hemorrhages beneath the surfaces of the heart and the surface of the abdominal viscera, a certain amount of enlargement of the abdominal lymphatic glands and a condition of great degeneration of the liver cells, associated with in general a distended state of the gall bladder. There was no abdominal ascites, a fact explainable by the liver trouble not having advanced sufficiently far to lead to circulatory disturbances in the abdomen, as in cattle dying from the disease, so with these inoculated rabbits, the spleen was constantly found firm and not enlarged.

Two sheep were inoculated subcutaneously; of these one was killed at the expiration of a week: in this there was no marked post-mortem disturbance beyond slight hemorrhages of the upper portions of the intestines, and slight enlargement of the abdominal lymphatic glands. From this case, although I detected occasional bacilli in the fresh blood, I was unable to gain any cultures. Full bacteriological examination of the tissues has still to be made.

The other sheep killed three weeks after inoculation gave rich culture of the bacillus from the pericardial fluid and from a small cold abscess which had developed in the neighbourhood of the mammary glands; post-mortem, there were hemorrhages beneath the surface of the heart, liver and small intestines close to its junction with the larger: the gall bladder was moderately full of light green bile, the liver was normal in appearance save for the hemorrhages. On manipulation it was found more friable than normal.

Evidently both in the rabbit and the sheep the disease is of slow progress.

The same would seem to be true of cattle. Four cattle (two years old) were inoculated. Two by the introduction of seven cans of pure cultures into the peritoneal cavity, two by feeding with large quantities (a pint each) of broth cultures. Of these, three at the moment of forwarding the report, are I learn still alive and in apparently good health. This I had expected. One fed by the mouth was killed at the expiration of a week. Externally it appeared to be in excellent condition. On killing, hemorrhages were found in the mucous membrane of the fourth stomach and from the heart blood, liver juice and pericardial fluid, good typical

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cultures of the bacillus were obtained. For the presence of these bacilli in the tissues after so many days, I can only account by their entry through the walls of the stomach and by their pathogenic nature. Had the growths been innocuous they would have been rapidly destroyed, hence although the animal was killed and its companions are still alive, I regard this discovery of living bacilli as a satisfactory proof of their pathogenic nature.

The only other possibilities are:

(1). That both at Pictou and in Montreal the same contaminating micro organism found its way into my culture fluids, and

(2). That I have come across a form parasitic in the organs of cattle and slightly pathogenic for rabbits. Either of these seems to me eminently unlikely.

The result obtained from the other cattle will be given in the fuller report.

From these observations upon rabbits, sheep and cattle, coupled with the discovery of the bacillus in animals dying from the disease or killed when it is at its height, I am led to the conclusion that the Pictou cattle disease is a zymotic or infectious disease due to the presence and growth with the organism of a specific micro-organism, a bacillus.

How this organism gains an entry into the system, how it produces its results, in what way infection passes from animal to animal, and lastly by what means the disease is to be eradicated, all these are matters into which I shall enter in extenso in my subsequent full report.

In the meantime it is satisfactory to state that this evidence of the bacillary nature of the disease fully justifies the regulations that have been in operation during the last two years. These regulations while not perfectly adapted to the complete stamping out of the disease are nevertheless excellently adapted towards keeping it in check. I hope in a very short time to forward to the Department a series of suggestions upon the subject of prevention.

J. GEORGE ADAMI.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 24.

REPORT OF COMMISSIONER OF NORTH WEST MOUNTED POLICE ON
CATTLE QUARANTINES IN NORTH-WEST TERRITORIES.

COLONEL HERCHMER, COMMISSIONER.

REGINA, 14th November, 1894.

SIR,— I have the honour to forward my annual report on the cattle quarantine in the North-west Territories. The following are the stations:—Estevan (Wood End), Wood Mountain District, Maple Creek District, Lethbridge District, Macleod District.

At Wood End, eight miles from Estevan, Canadian Pacific Railway, where a very large proportion of settlers' cattle are entered coming in via the Sault line, we have a very complete quarantine station. The cattle are first looked over at North Portal on the boundary line, and if found healthy, brought to Estevan, unloaded into a close fenced corral, and driven to Wood End; every precaution being taken to avoid contact with other animals. On arrival at Wood End they are put into a corral situated in the woods in a most sheltered situation, and supplied with sheds and constant water; during the summer months each separate herd is taken out at early morning in charge of herders, and returned before dark. During the winter, of course they are fed hay and kept in the corrals, and weak cattle are fed chopped grain, and bran mash. The quarantine is in charge of Inspector Wilson, and under him Staff-Sergeant Mitchell, V. S., and a staff of constables look immediately after the cattle. Last year we built a very commodious house for the men, the Department of Agriculture furnishing the material, and a large supply of hay was provided, all of which we did not consume; this hay was carefully looked after last summer, and several of the stacks re-topped, and the hay has not deteriorated. As the quarantine is to receive cattle all winter, we shall probably use the whole supply before spring. A sufficient quantity of hay has been secured at Estevan to feed the cattle immediately after unloading, and to keep them for a day or two in event of a storm delaying their proceeding to Wood End direct. Next year I propose to put the veterinary surgeon at Portal, and he can then visit the quarantine twice a week. As this noncommissioned officer does little or no work for the police, I think he should be paid entirely by your department, the total cost of his maintenance being about \$2.75 per diem; I also consider that the two police herders, now constantly employed at quarantine, should be paid, &c., by your department, as they cost the police \$1.75 per diem, and do nothing outside quarantine work.

The cattle that have been brought into quarantine during the two seasons that I have been in charge, have been a very indifferent lot, with the exception of a herd of Galloways, and a few other animals. Indeed, one settler who brought in cattle last month, sold six for \$25.00, rather than pay 12½ cents per diem for the feed, and, after careful inquiry, I find that the settlers, if compelled to come in without cattle, except pedigreed, would be much better off in the end. The price they can sell their cattle at before leaving home, added to the cost of freight, would buy a better animal in the territories, and when the loss of milk is taken into consideration during the ninety days of quarantine, which occasions great hardship, particularly on the children, the settlers would undoubtedly profit by importation being forbidden. Manitoba and the North-west are now full of good grade cattle, and there is not much market for female stock, and first class cows can be bought anywhere for \$20 to \$30, and two-years for \$15 to \$20. I would respectfully suggest that your department contract with some reputable dealers in each district to have a certain number of cows and heifers on hand early next spring, to sell to settlers at a fixed price, all to be passed by a veterinary before being accepted, and that, except in the case of pedigreed cattle, no cattle be allowed into the country, and that all immigration agents be notified in time. This would afford a good

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market to our own people, and would prevent the country being flooded with a lot of inbred cattle, which years of careful breeding up will not improve sufficiently to equal our own stock. Most of the cattle coming in are narrow and flat-ribbed, with wretchedly small hind quarters, and very coarse necks and heads, their horns being very thick, and evincing every symptom of close inbreeding of originally poor stock.

Between November, 1893, and April, 1894, no cattle were received in any quarantines under my charge. Between the latter date and October 31st, the following owners placed cattle in quarantine at Estevan:—A. Pfetscher, 5; Peter Bafter, 2; J. F. Nelson, 6; A. C. Campbell, 14; R. S. Campbell, 4; John Marhern, 3; F. S. Gine, 7; F. Connor, 3; P. F. Olsen, 12; J. P. Strong, 21; Wm. Miller, 16; E. A. Dawes, 16; F. M. Ramsey, 14; C. Thomas, 7; O. J. Lovering, 18; J. H. Lovering, 18; S. Larson, 7; H. Dittbernen, 2; H. R. McDougall, 6; total, 181.

Many of the cattle received were very weak and thin after poor wintering in the states, and a long journey, and some cows were so old that they could hardly eat grass; one indeed was entirely without teeth, and although slop fed, died before the period of quarantine was up, as she could not eat hay, and green leaves, on which we fed her, gave out owing to the frost.

I regret to say that a form of anthrax attacked one class in quarantine, and although veterinary assistance was rendered at once, and the veterinary surgeon of this force was sent to superintend treatment; five animals died, out of about fifteen attacked. The only other casualties were the toothless cow and a few calves that came very weak, their dams having evidently been hurt in transit, and having no milk to sustain their sickly calves.

At Wood Mountain, one small herd of cattle that strayed across into the United States, the property of Briggs & Gaudry, were, on their return, placed in quarantine for ninety days. No other cattle were quarantined.

At Maple Creek the C. & C. Cattle Company and others, having brought back 217 cattle which had drifted into the United States, were allowed, under police supervision, to quarantine them at Crane Lake, one of the company's own farms, and a settler named John Lindner, from Chinook, Montana, U.S., brought in 39 head of cattle, which were quarantined at the point authorized. This quarantine ground was moved by your directions from the vicinity of Kennedy's Post to the fork of Willow Creek, the new ground being better for feed and water, and much more easily worked by the police.

At the quarantine ground, south-east of Lethbridge, the only cattle that entered quarantine were 46 head belonging to one Waters, and 12 head belonging to one Patterson, the latter moving from just across the line in Montana, the former also being from Montana. These cattle were about the same quality as the usual range cattle, but belonging to small owners, were fairly quiet; their value was consequently the same as the cattle of the country.

At the quarantine south of Macleod, the following statement will show fully the number of cattle entered, and which were cared for by the police:—

STATEMENT of Cattle received into Quarantine on Milk River during the Year 1894.

Date.	Name.	From	To	Received.					Total.	Increase—Calves.	Lost, Died and Killed.				Total Released.
				Bulls.	Cows.	Heifers.	Steers.	Calves.			Bulls.	Cows.	Heifers.	Steers.		Calves.
1894.															
May	11 Reid, W.	Choteau, Mont.	Pincher Creek	1	15	14	5	8	43	7				2	48
do	20 Miller, F. C. L.	Spokane, Wash.	Wetaskawin		3	1		1	5	1					6
do	20 Folifer, J. G.	do	do		2	5		2	9						9
do	20 Folifer, F.	do	do	1	12	2		1	16	1					17
June	23 Woolf, F.	Utah	Cardston.	1	4	2		4	11						11
do	23 Woolf, Mrs. F.	do	do		5	4		5	14						14
do	23 Daines, Mrs. S.	do	do		4	5		2	11						11
do	23 Daines, Annie	do	do		6			4	10						10
do	23 Reader, Mrs. A.	do	do		3			3	6						6
do	23 Duce, G.	do	do		6	6		2	14	2					16
do	23 Woolf, M.	do	do		3	5	3	1	12	1					13
July	6 Parker, J. S.	Chesterfield, Id.	do		5	4	10	5	24						24
do	6 Parker, Mrs. J.	do	do		5	4	4	1	14	4					18
do	6 Parker, W. A.	do	do		4	8		1	13	1					14
do	6 Lytle, L.	do	do						18						18
do	6 Lytle, Mrs. L.	do	do		8			1	9						9
do	6 West, J. N.	do	do	*	1	20	20	18	12	9	1		1		90
do	6 West, F. W.	do	do	*		12	4	5	21						21
do	6 West, Mrs. J.	do	do	*		8	6		14						14
do	12 Foucher, F.	Genesea, Idaho.	Wetaskawin	1	3	5		1	10						10
do	12 Foucher, G.	do	do		3	8	5	1	17	2			1		18
do	12 Ketly, W. F.	Moscow, Idaho.	Innisfail	1		9	6		16						16
do	12 Ketly, Mrs. M.	do	do		5		1	3	9	1					10
do	12 Lockyer, T. G.	McCarmon, Id.	Fish Creek		3	2		1	6						6
do	14 Cochrane Ranch Co.		Cochrane Lease*	4	159	111	212	84	2479				90	20	2369
do	24 Clarke, W. R.	Stavelly, Wyom.	Cardston.		6	1		1	8						8
do	24 Jenkins, T. D.	Marhville, Id.	do		9	3		5	17	2					19
do	24 Webster, S.	Stavelly, Wyom.	do		7				7	1					8
do	24 Webster, L.	do	do		1	3		3	7						7
do	24 Webster, W.	do	do		10	4			14						14
do	24 Baird, J.	do	do		9			5	14	1					16
do	24 Baird, Mrs. E.	do	do	1			15		16						16
do	24 Craycroft, F. O.	do	do		1	3	1		5						5
do	24 Craycroft, Mrs M	do	do				3		3						3
do	25 Crose, F.	do	Fish Creek		2	3			5						5
do	25 Rolph, Mrs. M. A.	do	do		4	4		2	10						9
do	30 Leavitt, J. B.	Auburn, Wyom.	do		5	1		1	7						7
do	30 Leavitt, Mrs. J. B.	do	do		4				4						4
do	30 Rowlings, Mrs. S.	do	do	1	7	4		4	16						16
do	30 Rowlings, S. L.	do	do		10				10						10
Aug.	16 Myer, Mrs. F.	Nebraska.	Lacombe.		2				2						+2
do	24 Baner, J. K.	Washington T.	Calgary		3				6						+6
				12	378	251	2235	167	3043	26	1	91	24	2953	

*Range cattle, herded by owners.

†Not released—90 days not expired.

Department of Agriculture.

RECAPITULATION.

Received.							Loss.						
	Bulls.	Cows.	Heifers.	Steers.	Calves.	Total.		Bulls.	Cows.	Heifers.	Steers.	Calves.	Total.
Domestic cattle— Herded at Government expense.....	7	179	110	71	71	438	Domestic cattle— Natural death.....				1	2	.....
							Killed by wolves....					1	4
Range cattle— Herded by owners....	5	199	141	2164	96	2605	Range cattle— Natural death.....		1				
							Killed by wolves....				18	21	.....
							do by owners for beef.....				12		.....
							Strayed and lost by owners.....				60		112
Total.						3043	Total.....						116

The 2,121 steers entered by the Cochrane Company, which they had purchased in United States, were looked after by their own men under police supervision, as these were for speculation.

None of the cattle brought in showed symptoms of disease, though several died of anthrax shortly after admission. We are now inoculating cattle for tuberculosis at Wood End, and a detailed statement will be sent you when completed, this operation, however, involves both time and money.

Wood End is the only quarantine in the Territories where winter shelter is provided and hay put up, as at all other stations cattle are not received between 1st October and 1st April.

I have the honour to be, sir,

Your obedient servant,

J. W. HERCHMER,

Commissioner, N. W. M. P.

The Honourable
The Minister of Agriculture,
Ottawa.

MISCELLANEOUS REPORTS

No. 1.

REPORT OF PROFESSOR McEACHRAN, ON MASSACHUSETTS CATTLE COMMISSIONERS CONVENTION.

MONTREAL, 31st October, 1894.

SIR,—I have to report that I arrived in Worcester, Massachusetts, U.S., on the morning of October 26th, to attend the convention of the Cattle Commissioners of Massachusetts.

It consisted of that board of which Professor Stockbridge was chairman, the mayor and other prominent residents of Worcester, including Senator Walker and others, prominent in politics, besides the entire staff of inspectors, over two hundred, and a large number of veterinary surgeons and citizens.

The proceedings consisted of addresses by the chairman, mayor, Senator Walker, and papers on animal diseases by Professor Lyman, of Harvard Veterinary Department, and on tuberculosis by Professor Osgood, followed by animated discussions and the answering of questions by delegates in the audience. Professor Osgood laid the scheme proposed for stamping out tuberculosis and the legal powers under which the operations would be conducted before the audience, report of which I herewith inclose. It will be seen that a determined effort is to be made to rid the herds of the commonwealth of this plague, the State granting the commissioners ample powers and furnishing the money. Operations are to be commenced in the counties of Nantucket, Dukes and Barnstable. Each herd is to be tested with tuberculin, and all diseased and contact animals are to be slaughtered, and the owners indemnified to the extent of one-half their value before they became diseased.

Strict quarantine is to be maintained against adjoining states and Canada.

At the afternoon session I had the honour of addressing the meeting. I am happy to say that my remarks were well received, and a special request was made that my speech should be published in full.

I am very glad that I had the opportunity of being present at this meeting, and will no doubt learn much that will be of use to the department in this connection. The commissioners are to keep me well informed of the success of their operations and methods of meeting the various difficulties which are sure to arise from time to time in the administration of operations of such magnitude affecting so many vested rights. The proceedings are given in full in the following report.

I have the honour to be, sir,
Your obedient servant,

D. McEACHRAN,
M.R.C.V.S.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

REPORT OF CONVENTION.

"Those farmers of Massachusetts who attended the convention of the State Board of Cattle Commissioners, should be a well instructed and well informed lot of men on one of the subjects of vital importance to their prosperity and welfare. The cattle commissioners, decided to hold a conference or convention for the purpose of enlightening the cattle raisers and farmers of the State upon the subject of tuberculosis and other contagious diseases among cattle, to declare the policy of the board relative to measures for the extermination of the dread disease and to gain if possible any suggestions from their audience.

"When the convention was called to order, there were present: Prof. Levi Stockbridge, of Amherst, chairman of the board, and Dr. Chas. P. Lyman, its secretary; Dr. F. H. Osgood, Maurice O'Connell, of Holyoke, and Leander F. Herrick, of Millbury. Secretary William R. Sessions, of the State Board of Agriculture, and Mayor Henry A. March were also there. Gov. Greenhalge was expected, but after waiting a few minutes for him the session was opened and later a wire was received telling of his inability to reach Worcester.

"Prof. Stockbridge called the meeting to order and introduced the mayor. His honour, in his usual graceful manner, extended a most hearty welcome to the members of the convention. 'Such conventions as this,' he said, 'cannot fail to accomplish much good in the making of acquaintances, and the discussion of the subject matter engaging your attention. There are provisions in the present statute relating to contagious diseases among cattle which are not clearly understood, such as whether swine are to be treated as cattle, and how far boards of health can act independently of boards of aldermen in cities in the selection of inspectors. Governor Greenhalge has shown great interest in the work this commission is doing, and recently said at Athol: "There are three important factors connecting the State with local agriculture. They are the board of agriculture, the agricultural college and the cattle commission, the latter doing a valuable work in its attempt to exterminate the disease of tuberculosis, which is more important than the discovery of the northwest passage. The improvement of the cow means the improvement of man, for upon the cultivation and development of the cow depends the life of your wife, your child and yourself." I hope the session of your convention will not only be profitable but so agreeable that you will take to your several homes the pleasantest impressions of your visit to our city.

"Mayor Marsh's remarks were heartily applauded. Then the convention got down to solid work. Papers were read by two of its members, Dr. Lyman and Dr. Osgood; one on the disease of cattle, not including tuberculosis, and the other, which was by Dr. Osgood, confining itself exclusively to the latter subject. In the course of Dr. Osgood's paper a new, general order of the board was read relative to the methods to be adopted for the extermination of tuberculosis, and the radical measures proposed were almost alarming to some of the more conservative farmers. After the reading of each paper there was a general discussion, in which the board invited the fullest and freest inquiry from the floor. At 1 o'clock a recess was taken for dinner. The afternoon session was given up to informal remarks by prominent veterinary surgeons and others, and there was more discussion. There will be a practical illustration of the work of the board, as six cows affected with tuberculosis will be slaughtered at Bartlett's rendering works, and the members are to witness the test.

"Professor Stockbridge, in calling the morning session to order, briefly outlined the purpose of the convention. It had been called for the discussion of diseases communicative and contagious, the most important of which was consumption. 'I prefer to call it consumption,' he said, 'for then we know what it is. It is communicative from man to man, from man to animal, from animal to man, and from animal to animal. We are all in the same boat regarding the dissemination and communication of the disease, but the man is in control. It is possible to prevent the spread of the disease, and for such purposes laws have been enacted. It is our duty, first, to protect man, and secondly animals not affected by the disease. For

the accomplishment of this purpose, laws have been enacted. They are the best we could devise, and in enforcing them we ask for the co-operation of cities and towns in appointing competent men to work with the commission. Many are the difficulties and the doubts that arise. And in order to accomplish the greatest good, it is desirable to remove these, to establish harmony and unanimity of effort. This is the reason of the convention, that we might understand each other, that you might know what the cattle commissioners are trying to do, their methods for the extermination and the prevention of contagious diseases. Therefore, we shall ask you to state your grievances and your difficulties, let us know the obstacles that bother you, that we may explain and instruct, and be of mutual assistance to each other. I have the pleasure to present to you one of the members, Dr. Charles P. Lyman, who will read a paper which cannot fail to interest you.'

"Dr. Lyman spoke of contagious diseases, except that of tuberculosis. He said, by way of explanation, it should be realized that all contagious diseases depended absolutely on a specific germ for their origin. The germ should be considered as a seed and produces only the disease of its own kind. As some soils and climates are better for the fostering and development of the seed, so it is with the germs of contagious diseases, they find with some animals a good field for propagation. There are various influences which are favourable to the growth and propagation of the germ with animals. Among these are confinement in damp stables, the lack of proper exercise, the lack of sufficient air space, the lack of healthy and nutritious food, and the richness and surfeit of food. While contagious diseases are not transmitted to the offspring, the predisposition to the disease is an inherited quality, hence it is not desirable to raise stock except from healthy and sound animals.

"The diseases of which I shall make brief mention are glanders and farcy and contagious pleuro-pneumonia, Texas fever, foot and mouth diseases, rinderpest, hog cholera and rabies. Pleuro-pneumonia and the foot and mouth diseases have no foothold in the United States, and I have simply included them that they may be dealt with should the contingency arise. Pneumonia made its appearance here long ago, but was fought with commendable vigour and determination and finally exterminated. Massachusetts was first to stamp out the disease, and where it still exists there is little hope for its successful extermination until the Massachusetts methods have been courageously applied. The foot and mouth diseases appeared but once in New England, and were stamped out quickly by the heroic policy of Dr. E. F. Thayer. Texas or Spanish fever we are somewhat acquainted with here in New England. There is a law on the subject, and the efficiency of the national department of agriculture is guarantee that we will not have to deal with it again.

"Hog cholera comes occasionally and with heavy losses. Glanders and farcy are diseases confined to the horse family, although man is often affected by the former and sometimes fatally. The germs of the two diseases are almost identical. The usual sources of contagion are stables, mangers, watering troughs and hitching posts. Glanders is slow to show its presence, and is not always reported because the animal is able to work satisfactorily and the owner does not care to become a public benefactor to the extent of the loss of his investment.

"Rabies, a distressing disease, with fatal results in the majority of cases, is confined to dogs, although cats are sometimes affected by it. It is innoculable to man and all warm blooded animals. There have been two outbreaks in Massachusetts in the last twenty years. When a dog has bitten a person, he should be confined rather than killed, until the nature of the disease can be ascertained. Should there be another outbreak, dogs should be muzzled. Recent legislative enactments authorized the cattle commissioners to enforce such a measure, and as a member of the board, I should consider it my duty to take such action.

"At the conclusion of Dr. Lyman's paper, the chairman of the board invited questions from the floor. The invitation was quickly accepted, and Dr. Lyman was busy for the next ten minutes in answering. To the inquiry as to a cure for hog cholera he recommended, as beneficial remedies, white soda and quinine. He thought the feed had little to do with communicating or fostering the disease.

Department of Agriculture.

Tuberculosis among Cattle.

"The paper that followed Dr. Lyman's remarks provoked the greatest interest. It was by Dr. Osgood, and was a somewhat exhaustive review of tubercular disease, its causes and its symptoms and the methods for its detection. Thanks to the bureau of animal industry at Washington, the commission has obtained an excellent quality of tuberculin and has made something over 1,000 tests. Throughout these tests not a single autopsy where a possible reaction has been obtained had failed to confirm the diagnosis. As a result of this work the commission proposes to base future action from the results of the tuberculin tests. It has determined to adopt a fixed policy for the eradication of the disease and has passed an order, which goes into effect November 15th, 1894. The order in substance is as follows:—

"1.—Quarantine regulations upon cattle entering from without the borders of the commonwealth.

"2.—Regulation of cattle traffic at Brighton, Watertown and Somerville, which shall include all animals from within and without the commonwealth.

"3.—Systematic inspection of all herds in the State, beginning at the Cape; followed by extermination of diseased animals, disinfection of contaminated premises, and fixed quarantine regulations.

"The stock yards in Brighton and Watertown and the premises of the New England Dressed Beef and Wool Company, in Somerville are designated as quarantine stations. All neat cattle entered at any quarantine station shall immediately be placed in quarantine, and so remain, at the expense of the owner or consignee, for a period of not less than 24 hours, and shall be subjected to the tuberculin test. This test shall be made only by the board of cattle commissioners, or one of its members, or a duly authorized agent thereof, and without expense to the owner. All animals which, upon such inspection, shall be adjudged free from tuberculosis and other contagious disease, shall be branded with the seal of the commission. This brand will be placed upon the right horn and the outside of the right front hoof, on those animals having horns. Hornless cattle will be branded upon the right shoulder and upon the outside of the right front hoof.

"All neat cattle passing through the commonwealth, consigned from points without its limits for exportation from the State, will not be examined as herein provided, but such animals shall remain in quarantine until transported without the limits of the commonwealth. All neat cattle brought within the commonwealth, consigned directly to the Brighton abattoir for slaughter, shall be confined by themselves for identification, and shall not be released except after an examination as above provided, or except for immediate slaughter. It shall be the duty of every person or corporation desiring to drive any neat cattle into the State from any point without its limits, to notify in writing the board of cattle commissioners of his or its intention so to do, which notice shall state the town or city through which it is the intention to enter, and the time when the drove will arrive. All such cattle shall be immediately placed in quarantine at the expense of the owner or consignee, and shall there remain until they have been examined and branded or destroyed.

"The cape being the starting point, the boards of health and all owners of neat cattle in the counties of Nantucket, Dukes and Barnstable will be immediately notified that from November until such time as they shall be released by the board or one of its members, all neat cattle are ordered quarantined upon the premises of their owners, and that boards of health will see that all orders of the board regarding the disinfection of premises are enforced within twenty-four hours after their receipt.

"Managers and agents of all railroads entering or lying within the State will be immediately notified that no neat cattle brought within the limits of Massachusetts from any State or Territory of the United States, the District of Columbia or Canada, shall be unloaded, except in case of accident, for any purpose within the commonwealth at any place or places other than at such quarantine stations as may be designated by the board, except upon a written permit signed by the board or one of its members.

"Careful investigations conducted by the board in the use of tuberculin enable the members to add their indorsement to that of all careful investigators who have

experimented with it since its discovery in 1891, who agree that tuberculin is a reliable agent for determining the presence of tuberculosis in cattle; that tuberculin properly prepared and carefully handled can have no injurious effect upon other than tuberculous animals, and that it is the only known means whereby a positive diagnosis can be made in the early stages of the disease. The members of the board say that the cost to the State will be more than repaid from the increased demand and value of the product derived from this source, without considering the reduction in the mortality statistics of the commonwealth. When it is taken into consideration that the average ratio of deaths from tuberculosis in the human family is fourteen per cent, or one death in eight of the total mortality, and that tuberculosis is a preventable disease, the importance of the subject is abundantly demonstrated.

"The dairymen throughout the Eastern States, experienced as all of them are in tuberculosis, are watching and waiting for a market where they can go and be assured of buying animals free from the disease; while thinking men are asking themselves the question, 'Where can I procure my milk, butter and cheese, with the absolute knowledge that I am not giving to my children the germ of consumption.'

"Discussion for about an hour followed, when Congressman Joseph H. Walker, who had been an interested listener at the morning session, was called upon. He commended the step taken by the board and assured them that any expense caused by their official action would be thoroughly supported by the people.

"Who'll pay?" came from the audience.

"The State ought to pay," responded Congressman Walker.

"Will you stick to that?" from the audience again.

"You need not caution me to stick to anything I say," was the Congressman's answer. "Now, my friend, the farmers are in a measure responsible for the condition of things confronting us, but the commonwealth should, nevertheless, stand a portion of the expense. I say to the commission, 'Go ahead and clean out the disease at any cost. Exterminate tuberculosis and results will soon reimburse for the original outlay.'"

"William R. Sessions, secretary of the State Board of Agriculture, said he was somewhat doubtful at first as to the sentiment of the community regarding the subject under discussion. The size and interest of the audience before him was convincing argument that the time was ripe to agitate and act. He believed that the State should pay a part of the value of the animal slaughter, and in this way ally the cattle owners with the commission.

"Professor D. M. McEachran, M.R.C., V.S., dean of the veterinary department of McGill University, Montreal, congratulated a Massachusetts audience on the attitude of the State towards contagious diseases and applauded the commission for the courageous and progressive stand they had just taken.

Professor Noah Cressy, of Hartford, Conn., Dr. Madison Bunker, of Newton, and R. F. Deming, of Pepperel, made brief remarks.

"J. W. Brigham, of Sutton, was called upon by Dr. Osgood as a representative of the farmers. He told of his experience with the cattle commission, which was gratifying to the commissioners, but he did not stop there. He expressed the opinion that the board was 'working things up in good shape.' He thought the policy outlined by the commissioners would prove too great a burden for the taxpayers.

"Dr. Osgood assured him that the commission had already got its appropriation, and that the convention was held that they might know how to spend it.

"'I know you've got the money,' was the response. 'I don't contradict that. I want to know who is going to stand the expense. I don't blame you any, but we farmers are simply in your hands. Last winter's legislation was the most radical that has been enacted for years. The legislature next year may be inclined in the same direction, but I don't know about it!'"

"Dr. Ward moved, and it was so ordered that the thanks of the convention be extended to Dr. Osgood and Dr. Lyman for their papers, and the convention adjourned."

Department of Agriculture.

No. 2.

(Translation.)

REPORT OF THE "HARAS NATIONAL," FOR SEASON 1894.

MONTREAL, 31st October, 1894.

SIR,—I have the honour to report on the services performed at the various Experimental Farms by the stallions of the Haras National this year.

AT EXPERIMENTAL FARM AT NAPPAN, N.S.

The stallion Norman "Marquis de Puisage" (1st prize Laprairie, 1889; 1st prize, Sherbrooke, 1889; diploma, Sherbrooke, 1889; 3rd prize Toronto, 1889; 2nd prize, Montreal, 1891; 13th prize, World's Fair) left for Nappan, N.S., on the 25th day of April, where, after having travelled through the surrounding country, it returned to Montreal on the 2nd day of August. The number of services was 43; the average age of mares, 11 years.

AT EXPERIMENTAL FARM AT AGASSIZ, B.C.

The stallion Clydesdale "Gallant Model," 7726 (1st prize at Kilmacolen, Scotland, 1889; 3rd prize, at Greenock, 1889; 1st prize, Sherbrooke, 1889; 2nd prize, Huntingdon, 1890; 1st prize, Sherbrooke, 1890; 3rd prize, Montreal, 1891) left on the 25th day of April for Agassiz, thence for Chilliwack, till the 24th day of August, when it returned to Montreal. On account of the floods in the Fraser Valley his time was extended to two weeks. The number of services was 35, the average age of the mares being seven years old.

AT THE EXPERIMENTAL FARM, INDIAN HEAD, ASSA.

The stallion Clydesdale "Barlodo" 7461, 1667, left on the 25th of April, and returned the 25th of August, after having been four months on the Experimental Farm at Indian Head. It served during this period 83 mares, the average age being $6\frac{1}{2}$ years old. Indian Head has always been the farm where the services of our stallions are most appreciated, next to Ottawa and Nappan. The prizes received by this stallion are the following:—1st prize, Huntingdon, 1890; Montreal, 1890; Ottawa, 1891; 9th prize, World's Fair, 1st prize, Quebec.

AT EXPERIMENTAL FARM, BRANDON, MAN.

The Percheron, "Clement" (32172) left on the 25th April, and returned to Montreal on the 25th August. The number of services were 41. Average age of the mares, 9 years old. This stallion received the first prize at Brandon's fair, in 1893, and another one in 1894. His products carried also the first prizes in their respective classes.

AT EXPERIMENTAL FARM, OTTAWA.

The stallion "Normand," "General Protte," left here on the 27th April and returned on the 14th of August; its services at Ottawa were 63, while the average age of the mares was $9\frac{1}{2}$ years. The services of this animal were universally appreciated. It carried the 1st prize at Montreal in 1892, 3rd prize, Quebec, 1894, and the 13th prize at Chicago World's Fair.

Also, the Perceberon "Bonne Chance" (32170) 5:—1st prize, at Brandon, 1891; 11th prize at Chicago World's Fair; 1st prize, Quebec, 1894. Its services were 30. Two colts bred from him carried a first prize at the several district expositions.

The average births from service was 70 per cent, and in 1893 the average was 71.28 per cent. The services of the stallions of the Haras National during the year at the different Experimental Farms were 295, being an average of 49 per head; but represent a better figure compared with 1892.

The season of 1893 was noted for the crisis in horseflesh. The cause of this was due to the application of electricity to the modern tramways. The prices for common horses were greatly reduced. And if we add to this the restrictive McKinley bill, we can understand the prevalent causes of such crisis of late in horsebreeding.

We have to note after all, that the prices for good horses have remained the same, and that the new tariff will give more confidence to our horse-breeders. They are beginning to appreciate this system of Haras, which at first was so much criticised by them. It gives them valuable reproductive horses, at a reasonable price, without, however, affecting the private individuals engaged in breeding.

A law which would submit every stallion to a competent commission would soon do away with every common animal from our country; the same law granting a subsidy to the owners of the best stallions serving would aid the production of horses of the best quality, and of the same breed, in the different centres of the Dominion. Such a law I believe would give us the best and finest breed of horses in America, and perhaps in the whole world.

In the hope that ere long this scheme may receive the attention of the Government, especially in view of the excellent results already obtained by the humble efforts of our company.

I have the honour to be, sir,

Your obedient servant,

AUZIAS TURENNE,

Director, Haras National.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 3.

REPORT ON TUBERCULOSIS AT THE EXPERIMENTAL FARMS.

(PROF. SAUNDERS.)

CENTRAL EXPERIMENTAL FARM,
OTTAWA, 18th October, 1894.

SIR,—I have the honour to submit to you the following particulars in reference to the recent investigations made by me, under your instructions, at the several branch experimental farms, regarding the prevalence of tuberculosis among the cattle there. I have endeavoured to carry out the instructions received in a very careful and thorough manner, have tested every animal (excepting a few very young calves) belonging to the farms with tuberculin, and being fully satisfied, after much experience, of the entire reliability of this test, have had the animals which have given the reaction indicating the presence of this disease slaughtered. A post-mortem examination has been held in each case, and in every instance tubercle has been detected in the organs of the body.

In pursuance of this investigation I arrived in Brandon, Manitoba, on the 19th of July. The cattle composing the herd there consisted of four grades and twenty-four pure bred animals of the following breeds:—

	Cows.	Heifers.	Bulls.
Durhams	4	2	2
Ayrshires.....	2	—	3
Holsteins.....	2	1	2
Galloways.....	2	1	1
Herefords.....	—	1	1

The normal temperature of these animals was taken on the evening of the 19th and morning of the 20th of July, and the tuberculin injected during the forenoon of the 20th. The temperature of each animal was subsequently taken every three hours for a period of twenty-one hours. Out of the twenty-eight animals tested, twenty-one showed a rise in temperature above the normal of from two to six degrees. These were all killed the following day, a careful post-mortem made in each case, and records taken as to the organs in which tubercle was found. The seven animals which retained their normal temperature without marked variation during the test, may safely be regarded as free from this disease. In these investigations I had the assistance of Dr. F. Torrance, V.S., of Brandon, and Dr. S. J. Thompson, of Carberry, Man.

Of the twenty-one animals destroyed nineteen were pure bred, and two were grades. Nine of these were bred in Manitoba, and twelve came from Ontario. Most of the animals were in good condition and it was a matter of surprise, not only to myself but also to the superintendent of the farm and the attending veterinary surgeons, to find so many apparently healthy and vigorous animals showing evidence of this disease. In the absence of the tuberculin, it would have been impossible in the large majority of the cases, to have detected the slightest evidence of disease.

The following is a list of the names and breeds of the animals slaughtered, with the age and value of each:—

	Age.	Value.
1. Ross of Sydenham, Durham cow.....	8 years	\$100
2. Cowslip do	4 do	75
3. Rose of Darlington do	4 do	75
4. Fashion do	3 do	50

	Age.	Value.
5. Countess of Brandon Durham heifer.....	1½ do	\$100
6. General H. do bull.....	3 do	200
7. Jewel, Ayrshire cow.....	5 do	125
8. Middlesex do bull.....	3 do	100
9. Dandy Jack do	1½ do	50
10. Brandon Prince do	1 do	25
11. Queen of Waterloo, Holstein cow	6 do	150
12. Princess of Holland do heifer	1½ do	40
13. Holland Prince do bull	3 do	200
14. Violet, Galloway cow	8 do	200
15. Hannah B. do	6 do	100
16. Juno do heifer.....	2 do	50
17. Chester do bull	7 do	100
18. Hereford heifer, not registered.....	1 do	20
19. do bull do	2 do	30
20. Lily grade cow	aged	20
21. Grade steer	1 do	12
Total.....		\$1,822

The names, breeds, ages and value of the seven remaining animals are as follows:—

	Age.	Value.
1. Durham heifer calf.....	6 months	\$25
2. Brandon Hero, Durham bull....	1 year	50
3. Dandy, the 2nd, Ayrshire cow.....	5 do	125
4. Leda, Holstein cow.....	5 do	150
5. Manitoba Prince, Holstein bull.....	1 do	50
6. Daisy, grade cow.....	aged	20
7. Grade calf.....	4 months	10
Total.....		\$430

After the bodies of the diseased animals had been properly interred, and instructions given for disinfecting the buildings they had occupied, I proceeded to Indian Head, arriving there on the morning of 23rd July. On this farm I found a herd of 39 head, 3 of which were calves under two months, 9 were grades, and 30 pure bred, of the following breeds:—

	Cows.	Heifers.	Calves.	Bulls.
Durhams	4	2	3	2
Holsteins.....	5	1	2	1
Polled Angus.....	6	...	2	2

Each of these animals (with the exception of the three young calves) were subjected to the test. The normal temperature was taken twice in each case, at intervals of three hours, on July 23rd, the tuberculin injected at 5 p.m., and the temperature taken every three hours afterwards for twenty-one hours. Thirteen animals showed a very decided rise in temperature, similar to what had been observed in Brandon, the remaining 23 giving no marked increase in this respect. The former were destroyed and on post-mortem examination all were found to be more or less affected with tubercle. In this instance 10 of the diseased animals were thorough-breds and three grades, four were bred at Indian Head, and nine sent from Ontario. On this occasion I had the assistance of Dr. F. Torrance, V.S., of Brandon, Man., and Dr. J. Harris of Moosomin, N.W.T. The animals destroyed were all in good condition and most of them healthy and vigorous, without any physical symptoms of disease. The bodies were interred as at Brandon, and instructions given for thoroughly disinfecting the buildings.

Department of Agriculture.

The following is a list of the names and breeds of the animals killed, with the age and value of each:—

	Age.	Value.
1. Cowslip, Durham cow.....	7½ years.	\$100
2. Rosebud do	6½ do	100
3. Nellie Elgins do	3½ do	100
4. Red Knight, Durham bull	3½ do	100
5. Holstein heifer calf.....	8 months.	40
6. Pride of Eastview, Polled Angus cow.....	8 years.	100
7. Stella do do do	7 do	100
8. Daisy of Eaton do do	5½ do	100
9. Lady Eaton do do	3½ do	100
10. Stella of Assiniboia do do	3 do	75
11. Nellie, grade heifer..	2 do	30
12. Grade steer.....	2 do	30
Grade steer, calf.....	5 months.	10
Total.....		\$985

During the month of August, I visited the branch experimental farm at Nappan, N.S., with the object of testing the cattle there. As stated in Bulletin No. 20, page 31, we had known of one case of tuberculosis in this herd, a Durham cow which had manifested symptoms of the disease and was killed during the summer of 1893, and found to be tuberculous. There were 39 animals in this herd, consisting of 18 grades and 21 thoroughbreds, most of these were in good condition, and to all appearances healthy.

The pure bred animals consisted of the following breeds:—

	Cows.	Heifers.	Calves.	Bulls.
Durhams.....	5	2	...	1
Ayrshires.....	3	1	..	1
Holsteins.....	3	1	1	1
Jerseys.....	2	...	...	..

The normal temperature of each animal was taken on the morning of 23rd August, and the tuberculin injected at 1 p.m. that day. Subsequently the temperature was taken every three hours, for 18 hours, when 10 of the animals gave evidence of the presence of the disease. The reaction was less decided than in animals at the other farms, but on post-mortem examination the disease was demonstrated as existing in some of the organs, but in most instances in its earlier stages. Of the ten animals destroyed, five were grades and five were pure bred. One of the thorough-breds was sent from Western Ontario, one was purchased in New Brunswick, and the remainder, including the grades, were raised either at the farm or in other parts of Nova Scotia. In conducting these investigations, I was assisted by Dr. George Townsend, V.S., of New Glasgow; Dr. Wm. Jakeman, V.S., of Halifax, and Dr. F. G. Hall, V.S., of Amherst, N.S.

The following is a list of the names and breeds of the animals destroyed, with the age and value of each:—

	Age.	Value.
1. Farn Duchess, Durham cow.....	6 years.	\$ 75
2. Bass do heifer.....	1 do	25
3. Duchess of Nappan do do	1 do	10
4. Nappan's Fashion do do	4 do	150
5. Kate Ramona, Jersey cow.....	5 do	50
6. Old Tingley, Grade do	10 do	20
7. Susie do do	6 do	40
8. Mary do do	3 do	50
9. Molly do heifer.....	1 do	15
10. Wild Eyes do steer	2 do	15
Total.....		\$450

The bodies of these animals were buried and disinfected with lime as at the other farms, and instructions given for the disinfecting of the buildings.

AGASSIZ, B.C.

On the 13th of September, 1894, I arrived at Agassiz, in British Columbia, and proceeded to test the cattle there, numbering eighteen head in all, three of which were grade animals, and fifteen pure bred. The pure bred cattle consisted of the following breeds:—

	Cows.	Heifers.	Calves,	Bulls.
Durhams	2	2	...	1
Ayrshires	2	2	1	2
Holsteins	2	...	...	2

The preliminary tests of normal temperature were completed on the morning of 14th September, and the tuberculin injected about 1 p.m. on the same day. The temperature was subsequently taken every three hours for twenty-one hours, and the results showed that five of the animals were affected. These were all pure bred, three of them had been sent from Ontario, and two from Manitoba. These were killed on the following day, and on post-mortem examination all were found to be diseased. In two of them the disease was in an advanced condition, in the other three it was in its earlier stages.

The following is a list of the names and breeds of the animals destroyed with the age and value of each:—

	Age.	Value.
1. May Gwynne, Durham cow.....	9 years.	\$150
2. Cheam Gwynne do	4 do	150
3. Duke of Barrington, 18, Durham bull.....	3½ do	200
4. Violet, Ayrshire cow.....	6 do	100
5. Netherland Prince, 2nd; Holstein bull.....	3½ do	100
Total		\$700

The slaughtered animals were interred as at the other farms, and full instructions given for the disinfection of the buildings.

SUMMARY, BRANCH EXPERIMENTAL FARMS,

The total number of the animals destroyed, and their total value is as follows:

	Number.	Value.
Brandon, Manitoba.....	21	\$1,822
Indian Head, N. W. T.....	13	985
Nappan, N. S.....	10	450
Agassiz.....	5	700
Total.....	49	\$3,957

The proportion slaughtered, to the number tested, of the different breeds, will be found in the following table.

	No. Tested.	No. Killed.
Durhams.....	32	17
Ayrshires.....	17	5
Holsteins.....	24	5
Galloways	5	4
Herefords	2	2
Polled Angus.....	10	5
Jerseys.....	2	1
Grades.....	37	10
Total.....	119	49

Department of Agriculture.

From the above it will be seen that none of the breeds tested have been found exempt from this disease, and that tuberculosis exists also in grade cattle.

I have the honour to be, sir,
Your obedient servant,

WILLIAM SAUNDERS.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 4.

REPORT OF VACCINE INSTITUTE OF THE PROVINCE OF QUEBEC.

(E. GAUVREAU, M.D., M.S.F.H.)

QUEBEC, 24th October, 1894.

SIR,—As our institute has now been furnishing vaccine for over eight years to the government for the use of asylums, prisons and quarantines throughout the Dominion, and for the Indian reserves, we have thought that it would be useful and opportune to describe as briefly as is consistent with clearness, the methods and processes of animal vaccination.

Before entering upon this description I shall briefly state the mode employed in other vaccine institutes, the details of which can be found in Vaillard, Warlomont and Seaton on Vaccination. The method generally adopted to extract the lymph is as follows: Between the fifth and sixth days from the inoculation of the heifer, when the pustules have matured, the operator, with a pair of Chambon's Lanoix's or Bellusi's pincers, presses firmly the base of the vaccine pustule, in order to extract therefrom the greatest possible quantity of lymph. The liquid flowing from it is then placed in glass tubes or spread upon ivory points.

From the experiments I have constantly made during the eight years in which I have given special attention to this subject, I am led to believe the above method defective, since, in compressing the pustules, as was generally done, there escaped, together with the lymph, blood, minute particles of tissue, and sometimes pus, when this compression was exerted several times upon the same pustule. This repeated compression induced hyperæmia in the part operated upon, and, as a consequence, advanced the stage of suppuration, which should normally take place only between the sixth and seventh days. And indeed, if we examine the vaccine thus collected and laid on the ivory points, we find that it has a dark yellow colour, which is a certain indication that such vaccine contains foreign substances.

With these remarks upon the old method, I now pass to the mode which experience has led me to adopt. In the first place, the whole operation is conducted upon the strictest antiseptic principles. The stables, the heifers, the points, the instruments, the hands of the operator and his assistants are sterilized. The heifers must be young animals in perfect health, from three to twelve months old. Light, red or white heifers are preferable to those of a darker colour, inasmuch as the latter, owing to the large quantity of pigment contained in the epidermis, are often difficult of inoculation. Heifers are very seldom attacked by phthisis before the age of twelve months, and even were they so, there would be very little danger of transmitting the disease by variolous inoculation, a fact very clearly established by Mr. Strauss in a valuable work of his, from which the following quotation is here given:—

“The tubercle vaccinal infection is not probable and even almost chimerical, and this for a number of cumulative reasons which can be summed up as follows: 1st. Owing to the age of the vaccinated animal, the younger cows are very seldom tuberculous and hence cannot transmit a disease with which they are not themselves affected. 2nd. Even where the heifer is phthisical, the serum of the vaccinal postule would still run the strongest chances of not containing the tubercular germ. 3rd. Nevertheless if, through an impossibility, the vaccine used contained a tubercular germ, the mode of insertion adopted, and the slight depth of the vaccinal wound, would also prove eminently unfavourable to the development of the germ.”

The animal to be inoculated must be in good health and must have been first examined by a veterinary surgeon before the inoculation, and again at the moment

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of collecting the lymph. The heifer must be brought to the stable at least twenty-four hours before the surgeon's inspection, as it sometimes happens that after a journey more or less long and fatiguing, the animal appears depressed and languid, but this condition does not always imply the existence of disease, and rapidly disappears after some hours of rest.

The inoculation of the heifer comprises a series of operations of which the following is the order: 1st. The skin is shaved at the spot selected for the purpose. 2nd. The surface is scarified. 3rd. The vaccine virus is inserted in each of the scarifications. To perform these operations it is necessary that the animal be previously bound so as to be motionless, and after the operation the spot is washed with an antiseptic solution and wiped with a sterilized cloth. Between the fifth and sixth day after the inoculation, when the pustules have reached maturity, the operator presses lightly upon them, in order to rupture the membranes. Within a few hours the lymph begins to flow in large drops, white and very limpid. These drops are received by the operator upon a small camel's hair brush, which has also been previously sterilized, and are by means of this brush transferred to ivory points fixed into an instrument of which the following is a description: It is composed of two wooden rods, lined with rubber bands. These rods are held together by means of screws, which are tightened at will to keep the points in position. The rods are three feet long and hold 150 points. A person used to the work generally takes five minutes to supply the rods with points, and two or three minutes suffices for the physician to coat these 150 points with lymph. In thirty-six hours, during the month of June last, I charged 25,000 points with the help of two assistants only. The same work, under the old system, would have required the labour of nine or ten physicians, and, furthermore, the points would have been exposed to be contaminated by the hands of the operator. By not compressing the pustules, and by simply allowing the lymph to run naturally until the suppurative stage exclusively, and also in laying it upon the points with a sterilized pencil or brush, we are almost sure to have a vaccine chemically pure and so limpid that it is barely perceptible upon the ivory points; a great difference from that collected by the old method, which is quite visible, owing to its dark yellow hue.

Heat and cold have a marked influence upon the evolution of the pustules, in warm weather the lymph may be collected on the fourth day, whereas cold retards it, so much so, that in winter the collection of it is only made on the sixth day. It may be well to add here that the evolution of the vaccine pustule is more rapid in the bovine than in the human species. As a general rule the eruption in the animal is completely developed and the lymph may be utilized, after five times twenty-four hours.

The remarkable results obtained by this method have induced me, sir, to lay it before you as I have just done. We have this year enregistered in Montreal the finest record of the whole world in the annals of vaccination. In effect, if we examine the reports on primary vaccination in the several countries of Europe and America, we observe a want of success in from 15 to 20 per cent of the cases reported; whereas here in Montreal, during the month of June last, out of 17,000 points employed in the space of two weeks, not one failure was reported, and all the eruptions were as fine as could be desired.

I have also pleasure in calling your attention to the significant fact that the vaccine institute of the methods of which I have spoken to you, is a Government Institution and is the only one of its kind in America under government control, a circumstance which affords a two-fold guarantee to the public, first by reason of the supervision exercised over its administration by the officers appointed by the executive, and secondly, by reason of the conditions of its management and the subsidy granted by the Legislature for its maintenance, the effect of which is that the director is not tempted from a desire of gain or speculation, to dispose of say 3,000 points when he knows that only 2,000 are reliable. The institute is moreover placed under the special control of the Provincial Board of Health. The heifers are inspected twice by the government veterinary surgeon, Dr. J. A. Couture, first, before inoculation and again at the moment of collecting the lymph. At this second inspection, if the

animal is found to be in perfect health, the surgeon delivers his certificate to that effect. The collection of the lymph and the coating of the points are moreover subject to the inspection of the two medical inspectors of the Provincial Board of Health, Drs. Catellier and Beaudry; and beyond this, as a further precaution and guarantee of purity, a sample of the lymph gathered from each animal is sent to Dr. Wyatt Johnson, to be submitted to a bacteriological examination.

The brief exposé I have made will give you, sir, a favourable idea of the working of the Institute with which I am connected, not because I have myself elaborated the methods therein followed, although I frankly confess that I have devoted myself to the subject with the deepest interest and with an ardent desire to be of some help to my fellowmen in a matter of such vital importance; but especially because this Institute is a striking example of the advantages of government control over institutions of this nature, a control exercised in every country of Europe, and which I earnestly wish to see introduced into every portion of our American continent. Certificates attesting the value of our vaccine have been received from numerous physicians both in Canada and the United States, and of these the following are here inserted, as containing the views of leading men in the profession, whose names are widely known.

General satisfaction expressed with your virus. It has only to be known to be appreciated. I am recommending it to our local board of health here.

Yours truly,

JOHN COVENTRY, M.D.

Windsor, Ont., July 6th, 1894.

Your vaccine is the best I have yet used. I have used points from Washington, Boston, Chicago, Cleveland and Palmerston, but with none have I had so few failures and good satisfactory results as I obtained with yours. Out of the 500 points I obtained from you four only failed.

I remain, yours truly,

JOS. O. RÉAUME, M.D.

Windsor, Ont., July 16th, 1894.

Your vaccine has given me very much better satisfaction than any obtained from the vaccine establishments in the United States. I have never seen a bad arm from its use, it is not severe in its results, very rarely fails to take and never produces those peculiar raspberry results so often seen with American vaccine and known to give no protection when such a result occurs. No bad result has ever yet been known after its use. For my own part, I would never use any other vaccine if I could obtain yours, and I now use only your vaccine in my practice in the city of New York.

Sincerely yours,

R. RUSSELL, M.D.

2979 Decatur Avenue, Bedford Park, New York City, May 17th, 1894

It may be a satisfaction to you to know that the vaccine points furnished by you are, in my opinion, the best and the purest to be had anywhere. I have never known them to fail when fresh and properly used.

Yours truly,

F. J. AUSTIN,

Medical Health Officer.

Sherbrooke, P. Q., Oct. 8th, 1894.

Department of Agriculture.

Send me some more of that admirable vaccine, every point of the last took typically. I am impressed with the idea that if you could bring that vaccine before the Ontario physicians, you would secure much of their patronage. Send a circular to all the Ontario physicians and append testimonials. I will furnish you with a strongly worded document.

Yours cordially,

THOMAS NICHOL, M.D.

Montreal, April 8th, 1889.

It affords me much pleasure in stating that the vaccine lymph which you supplied me with, has more than met my most sanguine anticipations. I have used it in at least fifty cases the last spring without having had a single failure. This is more than I can say concerning vaccine lymph which I have obtained from other vaccine farms. I have had a very large experience in vaccination, having at one time of my professional life been a public vaccinator for fifteen years for a large section of the city of Montreal. Your lymph has given me complete satisfaction.

Yours truly,

F. WAYLAND, M.D., L.R.C.P.L.,
Dean Medical Faculty University of Bishop's College.

Montreal, 1st June, 1887.

Since the 4th September, 1891, the Montreal Board of Health has exclusively used vaccine lymph, obtained from your institute, and I have pleasure in informing you that the 10,000 points you have furnished have been used by our vaccinating physicians and by other doctors, and that they have given complete satisfaction. The announcement of this result ought to be sufficient to recommend your vaccine to those persons who have not yet made use of it.

Your devoted servant,

L. LABERGE, M.D.,
Health Officer.

BOARD OF HEALTH, CITY HALL,
Montreal, 3rd February, 1892.

We trust that the foregoing brief notes will suffice without entering into greater details, to show that when the whole series of operation is conducted upon strict antiseptic principles, no harmful results are to be apprehended from vaccine so collected, provided that the physicians afterwards, in performing the slight but important operation of vaccinating the child, should not forget that the slightest scratch is a door opened to death, and neglect none of that care of cleanliness nor of those antiseptic methods so scrupulously adhered to by the practitioner in every great chiralurgical operation.

I am, sir, your obedient servant,

ED. GAUVREAU, M.D., M.S.F.H.,
Director of the Vaccine Institute of the Government of the Province of Quebec.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 5.

REPORT OF ENTOMOLOGIST ON INTRODUCTION OF THE CODLING
MOTH IN BRITISH COLUMBIA.JAMES FLETCHER, F.R.S.C. (*Dominion Entomologist.*)

OTTAWA, 3rd November, 1894.

SIR,—I have the honour to report on the danger of introducing insects injurious to fruit, into districts hitherto free from such, in reply to your inquiry thereon.

The codling moth is the most destructive of apple insect pests.

Mr. Anderson, the statistician of British Columbia, states positively that the codling moth is not found in British Columbia. He made this statement in an official letter to the department.

If this be actually true, the government of British Columbia are wise to take every measure to prevent its introduction. In the case, however, of the stoppage of a fruit-shipment from the East, with signs of infection, which has arisen from the carrying out of the new law, it is possible that some more lenient interpretation of the Act would be justifiable and advisable. The natural history of the codling moth being well understood, it is known that the insects which are now in the apples in the larval condition will not produce perfect insects until next spring. As apples are a perishable product, there is no doubt that the consignment now under discussion will be used before the spring; and I am under the impression that if the barrels in which these apples are packed are destroyed, and their contents carefully hand picked by a competent person, and such as are not infected by the insects, transferred to new barrels, the infected apples being destroyed, there would be no danger of introducing this insect.

This opinion, it must be understood, applies only to the present case. There would certainly be danger if later shipments are made of late winter apples. It would be far better if shippers and purchasers were notified as soon as possible of this British Columbia law, so that they may purchase apples from some of the many fruit growers in Ontario who have adopted the advised methods of spraying with paris green, for protecting their fruit against the attacks of the codling moth. This practice is now becoming widely adopted in Ontario, and I have no doubt that the addresses of fruit growers who have taken this precaution can be obtained from the Secretary of the Fruit Growers' Association of Ontario.

I would further state that in this vicinity the codling moth brings forth one and sometimes two broods in a season; in the neighbourhood of London, Ont., two broods; in California, three or four broods; and probably if it were introduced into British Columbia the number of broods would be the same as in California.

It will be seen from this statement of the natural history of the insect how important it is for the province of British Columbia to prevent its introduction and spread by every possible means.

I have the honour to be, sir,

Your obedient servant,

JAMES FELTCHER, F.R.S.C.,

Dominion Entomologist.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 6.

REPORT ON AUSTRALIAN ARROWROOT.

OTTAWA, 31st October, 1894.

SIR,—I have the honour to report that five cases of arrowroot were received by this department, as an experimental consignment, from the Queensland Government, Brisbane, Australia, and with a view to testing its quality and commercial value, it was distributed according to your instructions amongst the following leading firms, viz.:—Eby, Blaine & Co., Toronto; Perkins, Ince & Co., Toronto; Kavanagh, Ottawa; D. Masson & Co., Montreal; Christie, Brown & Co., Toronto; W. C. Gibson & Son., Ottawa; Hooper & Co., Toronto; R. W. Elliott, Toronto; Kenneth Campbell, Montreal; H. F. McCarthy, Ottawa; E. Geroux, Quebec.

Inquiry made from these gentlemen as to their opinion respecting the same has elicited the following remarks:—

Messrs. Eby, Blain & Co. state that: "Arrowroot is handled more largely by druggists than by grocers. The demand is limited, and we have only disposed of a small portion of the quantity sent. Will try and report definitely later on."

Messrs. Perkins, Ince & Co. report as follows: "Very little of the article is sold by grocers, the trade being principally in the hands of druggists. The quantity sold in the Toronto market is very small, and the supply is drawn almost entirely from London. We do not think a sufficient quantity would be taken to make it an object of direct shipment from Queensland. We believe the quality to be very fine. The sample sent to the Toronto hospital was pronounced to be very much better than that generally used. The arrowroot consumed here is almost entirely that of St. Vincent, which fetches twelve and a half to fifteen cents per pound, but the Queensland should be worth considerably more, though it would be difficult to dispose of it at a higher price.

Messrs. E. Masson & Co., report that:—"They have offered Australian arrowroot to the trade, and latterly to one of the largest consumers in Montreal, but the article could not compete with the quality known as the St. Vincent. We have tried it in our respective homes, and the report is the same—'Very palatable, but more like corn starch than arrowroot.'"

It was suggested to the department that a large trade in arrowroot lies in the hands of druggists, and, consequently, samples were forwarded to Messrs. Giroux, of Quebec, McCarthy, of Ottawa, and Kenneth Campbell, of Montreal, also, Hooper & Co., of Toronto, and representations having been made that arrowroot was largely used in the manufacture of biscuits, samples were sent to Messrs. Christie, Brown & Co., of Toronto, and Messrs. Gibson, of Ottawa. Subjoined is a synopsis of the opinions given by the above firms.

Druggists.

Mr. R. W. Elliott, a wholesale druggist of Toronto, to whom Messrs. Eby, Blaine & Co. submitted a sample, reports that he "placed the same in the hands of Professor Shuttleworth, analyst, who reported as follows: 'Under the microscope the granules of starchy matter are much larger than any other quality in use here. After cooking it yields a gelatinous mass more resembling starch than the Jamaica or St. Vincent arrowroot in common use. It is clean and would no doubt be a wholesome article of diet, but it would not sell as arrowroot.' Eby, Blaine & Co., further state that from the above it would appear that the quality is not up to the standard of the arrowroot sold in this market. They also add that the demand is so limited for this article that the prospect of creating a business of any magnitude is to say the least, improbable."

MONTREAL, 7th June, 1894.

Reports Furnished by Mr. Kenneth Campbell.

SIR,—I have the honour to report upon the Australian arrowroot, examination of which the department asked me to undertake.

The delay in doing so is due to the difficulty of getting hospitals, &c., to take sufficient interest in the matter. In several cases the samples had to be duplicated, even then with no result.

Careful examination under the microscope showed the substance is really not "arrowroot."

It is the *tous les mois* of commerce, which I remember as being sold years ago at a pretty high price, but which is now hardly known.

This view was confirmed by Dr. J. B. Edwards, to whom I submitted a sample, and whose report is annexed.

The medicinal and dietary value of the Australian arrowroot may be considered as equal to the Bermuda variety.

The trade value ought therefore to be about the same.

But whether from the limited quantity of Bermuda arrowroot imported and sold the trade in the Australian article would ever be of great volume is doubtful.

Halifax is the chief entering port for arrowroot, and the annexed memorandum, kindly furnished me by the statistical officer there, shows the small amount brought in.

In view of the fact that medical men discourse the use of starch foods for children, I do not think its consumption for this purpose can exceed that of arrowroot from the West Indies.

How far it might be substituted for corn starch, very large quantities of which are used yearly, depends upon what price it could be sold for in this country.

On this point, not knowing its cost, I can give no opinion, but that it can be used for all the purposes to which corn starch is applied, seems very probable.

I have the honour to be, sir,

Your obedient servant,

(Sgd.) KENNETH CAMPBELL.

P.S.—I inclose such reports as I was able to collect.—(Sgd.) K.C.

2669 ST. CATHERINE STREET, April, 1894.

Messrs. KENNETH CAMPBELL & Co.

DEAR SIRs,—As requested by you, I have examined a package of arrowroot from Australia, and have pleasure in testifying to its being a pure, nutritious and wholesome starch. I have fed it to children and examined it microscopically.

Yours faithfully,

(Sgd.) D. F. GURD, M.D.

WESTERN HOSPITAL, 25th April, 1894.

To Messrs. KENNETH CAMPBELL & Co.

DEAR SIRs,—We have tried the sample of arrowroot which you kindly sent us, and consider it a very good quality.

(Sgd.) GEO. FISK, M.D.,

House Surgeon.

ROYAL VICTORIA HOSPITAL,
MONTREAL, 11th May, 1894.

To Messrs. CAMPBELL & Co., Montreal.

DEAR SIRs,—*Re* Australian arrowroot. On receiving your sample of arrowroot, I submitted it to one of our doctors, with a request that he would carefully analyse it and give me a report upon it. Unfortunately, however, he has been confined to

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bed for four weeks with an attack of typhoid fever, and I am unable to find his notes of the examination. He is now getting better and tells me from memory that he considered the sample an exceedingly good one, and quite suitable for this market. Our cook, who tried it, speaks most highly of it.

Yours very truly,
(Sgd.) JNO. J. ROLSON.

MONTREAL, 27th April, 1894.

Messrs. CAMPBELL & Co., Montreal.

DEAR SIRs,—With regard to the sample of Queensland arrowroot you sent me for examination, I find it to be an exceedingly clear, clean sample of starch, showing care in manufacturing. As to its flavour, I cannot say, for the sample had evidently been near some strong odoured drugs and strongly flavoured by them. If you have another sample I would like to taste its true flavour.

I remain yours truly,
(Sgd.) W. H. CHAPMAN, *Druggist.*

LABORATORY OF INLAND REVENUE, OFFICE OF
PUBLIC ANALYST, MONTREAL, 12th March, 1894.

Messrs. CAMPBELL & Co., Montreal.

GENTLEMEN,—I have examined the two samples of arrowroot. One is a good, say Bermuda arrowroot, *Mananta Arundinacea*; the other marked Australian is *tous les mois* from the *Canna Edulis*, and known as "Canna" arrowroot. It is of equal value with Bermuda arrowroot, and by some preferred as of a more delicate flavour.

It is equally nutritious as a light invalid diet.

(Sgd.) J. BAKER EDWARDS.

MONTREAL GENERAL HOSPITAL,
MONTREAL, 29th May, 1894.

Messrs. CAMPBELL & Co., Montreal.

DEAR DR. CAMPBELL,—After examining the specimen of arrowroot you kindly sent me, I may state my observations. In texture it is of a somewhat crystalline nature. In colour a little less white than is usually seen. After preparation with milk and water separately, I found it to be of fair consistence with a slight yellowish white colour and pleasant to the palate.

Compared with the specimen we use which costs us 10½ cents a pound in bond lots, I find it is not as white. It does not form as thick a mess with equal quantity. It is a cleaner preparation. As to its nourishing power, I had not enough to make test.

Yours truly,
R. MACKENZIE, M.D.,
Superintendent.

H.M. CUSTOMS, HALIFAX.

Statement of arrowroot imported into the port of Halifax, from the West Indies, for the year ended 31st December, 1893.

	Lbs.	\$
Imported from Bermuda.....	736	167
do Dominica	1,975	119

TORONTO, 9th June, 1894.

DEAR SIR,—We are in receipt of your favour of the 8th instant, asking for opinion *re* the Australian arrowroot left in our hands in March last.

In reply we beg to advise you that we cannot find any trace of the sample or letter having been received from you.

We received a sample of flour through our Montreal agency, which we had examined and report forwarded.

It is just possible our Mr. Christie who is absent in Europe received the sample prior to leaving, as he attends to all matters of that kind, but we cannot find any trace of it here, although we have diligently searched for it.

Yours truly,

CHRISTIE, BROWN & Co., per T. Edmonds.

OTTAWA, 14th June, 1894.

DEAR SIR,—Replying to yours of the 8th, we fine sample of arrowroot of very good quality. If price is not too high, we could handle in small quantities.

Yours truly,

W. C. GIBSON & SON.

OTTAWA, 28th June, 1894.

DEAR SIR,—Replying to your favour of 11th June, *re* sample of arrowroot forwarded us. We find from a very reasonable source that in Canada there is not more than half a ton sold during the whole year.

West India arrowroot can be bought at two pence three farthings per lb. in bulk, or four pence per lb. in one lb. glass bottles in London, England.

For manufacturing purposes corn starch is taking the place of arrowroot, and the latter is now used for medical purposes only.

The sample you forwarded is of good quality, but slightly different in colour from the West India arrowroot.

Our informant mentions that the demand for arrowroot is growing less every year.

Yours truly,

CHRISTIE, BROWN & Co., per T. Edmonds.

444 SPADINA AVENUE,

TORONTO, 2nd July, 1894.

DEAR SIR,—With regard to the sample of arrowroot from Australia, which you were good enough to send us, we beg to report as follows:—

We found the sample to be of first class quality, equal to the finest Bermuda. We submitted sample packages to some of our oldest customers, all of whom were pleased with the quality. The amount of arrowroot used in the country is not very large, not nearly as large as should be, considering the valuable qualities it possesses.

If the sample can be sold a little less than the Bermuda there is no reason why much of the trade should not go to Australia.

Your obedient servants,

HOOPER & Co.

Secretary, Department of Agriculture,
Ottawa.

Replies have not yet been received from some of the parties to whom samples were sent.

I have the honour to be, sir,

Your obedient servant,

H. B. SMALL,

Secretary Department of Agriculture.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 7.

THE WILD SILKWORMS OF THE PROVINCE OF SHANTUNG.

A Report sent to the Department of Agriculture from the Imperial Maritime Customs, Chefoo, China.

SHANGHAI, 24th March, 1894.

SIR,—I have to invite your opinion as to the possibility of introducing into Canada the oak and oak chestnut upon which the northern Chinese silkworms feed, with the object of establishing this industry in Canada. The comparative climates of northern China and Canada are somewhat similar. Having obtained considerable quantities of acorns and oak chestnut seeds, I am sending a package which I would ask may be planted and duly cared for, if you regard the introduction of such plants with official attention, and the subsequent introduction of the silk-worm. I send to you herewith a pamphlet both scientific and practical on the cultivation of the silk-worm, and the treatment of the worms nourished on the oak. Assuming that the Department of Agriculture is desirous to encourage enterprises calculated to enrich and add to the resources of the Dominion, I venture to remark that I fully believe in the possibility of the silkworm industry flourishing in Canada. I shall be glad to receive an expression of your opinion as to the utility and acceptability of the above suggestion.

I have the honour to be, sir,
Your obedient servant,

H. KOPSCH, F. R. G. S.

The Honourable,
The Minister of Agriculture,
Ottawa.

(SILKWORMS.)

According to Cuvier and other naturalists, the *Bombyx Mori*, the silkworm of France and Italy, is a native of the northern provinces of China. Though it is hardly known in its original wild state, Père A. David and, I think, Prezewalsky, have found the real wild insect in Mongolia. I possess a few small cocoons of pale yellow silk, which were brought to me from the mountainous districts of eastern Shantung, by the natives, who pretend that these are the cocoons of the wild silkworm, which feeds on the wild mulberry (*Morus sylvestris*.) These cocoons, narrow and sharp-pointed at one end, measure 2.50 centimetres in length, being only from four to six millimetres in diameter. Though the silk is very fine, they are of little use, being rather rare.

The central and western districts produce beautiful yellow and white silks obtained from the *Bombyx Mori*. The neighbourhood of Chi-nan-fu and Chi-ning-chou have ever been famous for their silk piece goods, particularly for lustrings, gauze and damasks which, according to some native books, are the best in China.

During the middle ages Shantung was one of the most noted provinces for the production of silk. Marco Polo speaks of the large traffic in silks made in western Shantung, especially in Yen-chou-fu and Chi-nan-fu. "There are great merchants here," he says, "who trade on a large scale, and the abundance of silk is something marvellous * * * " Later on, Friar Odoric (A.D. 1344-5) speaks of Chi-ning-chou as "a place which has a greater plenty of silk than perhaps any place on earth * * * "

In the vicinity of Ning-hai-chou there is a kind of silkworm which is said to have been imported from Corea. The cocoons are nearly spherical, measuring 2.52 centimetres in length and two centimetres in diameter. They are of a beautiful straw colour and are highly esteemed.

These silks are little exported from Chefoo, except perhaps in skeins; but this port being a very important market for what is called Shantung Pongees, we will devote a special paragraph to this silk, of which thousands of bales are exported every year to France and England.

History.—The Shoo-king, in the Tribute of Yü, says: "The wild tribes of Lai were taught tillage and brought in their baskets the silk from the *mountain mulberry*." This is the first notice we find of the wild silks "Yen-sü" of China and Shantung. In the "Wu-hsing"—five elements—or the Chronology of Events of the Shantung Miscellany, we find that: "Under the reign of 'Yuan ti,' 39 B.C., in the east of the 'Mo-shan,' the wild silkworms spun their cocoons, of which more than 10,000 piculs were collected, and garments were made of this silk." Another book, the "Tang-hui-yao," says that in A.D. 640 the wild silkworms ate the leaf of the "Thu," and made cocoons as large as plums. In A.D. 975, the same worms, according to the "Wu-hsing," made their cocoons in the district of Chi-nan-fu.

Now, what kind of silk is meant by those we have just quoted from Chinese texts? From my researches I have come to the conclusion that they are undoubtedly our actual Shantung Pongee. Indeed, the territory of the wild tribes of Lai is the one now occupied by the two prefectures of Lai-chow-fu and Teng-chou-fu in which we find the Lai mountain, near the city of Lai-yang, all names evidently derived from the aboriginal tribes of the Lai. The Mo mountain, mentioned in the Miscellany, have preserved their name and are found seven li N.E. of Ning-hai-chou. The present name of the Pongee silk "Yeh-ts'an-ssu," the wild raw silk of the trade, means literally silk from the wild worms; and the two prefectures above mentioned are still famous for the production of this silk, whilst their annals still mention it under the very name of Yen-ssu. The great market for the best quality is Chang-yi-hsien in the prefecture of Lai-chou.

As their name indicates, these silkworms are wild, that is, they are reared in the open air, on the oak trees, of which they eat the leaf. They are a sturdy race, as neither cold nor rain seem to affect them, and they are cultivated as far north as Manchuria.

It is curious to note that the veteran naturalist Pliny knew of a silk-producing worm feeding on the leaves of oaks in the isle of Cos, in the Greek Archipelago, and from whose cocoons silk was woven. The allusions to the rearing of this worm, the softening of the cocoons in water and their subsequent reeling, and to the lightness of the tissue as adapting it for summer wear, all clearly point to a wild silkworm.

Amongst the silk piece goods mentioned by Marco Polo, Friar Odoric, Nieuhoff and the Jesuit writers, must have been the Pongee as it is still produced in the district which they visited. Nieuhoff (1655) quotes evidently from Father Martini when he says: "C'est une chose rare et qui va même jusque dans l'excès, et un témoignage que la nature est fort prodigue envers cette nation en ce que la soie y croit d'elle-même dans les arbres et dans la campagne sans être filée par des vers à soie domestiques, mais par d'autres qui ne ressemblent pas mal aux chenilles; ils ne la tirent pas en rond ni en ovale, mais bien à fil très long, qui sort peu à peu de leur bouche; cette soie est fort blanche; le fil s'attachant aux arbrisseaux et aux buissons et poussé d'un côté et d'autre par le vent, on l'amasse, et on en fait des draps de soie, comme si c'était véritablement du fin lin, et bien qu'ils soient un peu plus gros que ceux qui sont faits de soie filée dans la maison, c'est qu'ils sont plus serrés et plus forts." Father Duhalde (1735) speaks in the very same words, but he adds: "These worms are wild and eat indifferently the leaves of the mulberry or other trees. Those who know nothing of silks would take these silks for coarse linen or a very coarse kind of druggat. These goods are of a gray colour, can stand washing; are called "Chien chou," and form an important branch of trade; though of no pretty appearance, it is much used for clothing by all classes of society."

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All these descriptions evidently apply to the same article, the "Chien chou" or Shan-tung Pongee. The Chinese say that the worm furnishing this silk can feed on different kinds of trees, which I now propose to discuss.

The caterpillar or worm of the oak moth, or *Bombyx Pernyi*, feeds indeed on four or more kinds of trees, three of which at least are oaks.

In Shan-tung, it is a special kind of oak which is used for this purpose. This oak has leaves exactly like those of the chestnut tree; its bark, when old, is soft and furrowed and looks much like cork, so that, except when it bears its acorns, it would not be taken for an oak; and I have seen a good many old residents in this country who never noticed the difference. This oak answers to the descriptions given by Father d'Incarville, after Tournefort: *Quercus Orientalis Castaneæfolia, glande reconditâ in capsulâ crassâ et squammerosâ.* Though found wild on every hill in Shan-tung it is specially cultivated for the rearing of the silkworms. The acorn cup—tsao tiou—conspicuous for its long scales bent outwards and very rich in tannin, is used with sulphate of iron to produce a black dye just like the one of *Quercus Vallonea*, kty. in Turkey and Asia Minor. In fact, Miguel states the Chinese (and Japanese) *Quercus Serrata* to be the Georgian *Quercus Castaneæfolia* c.A.M. which both C. Koch and Grisebach consider identical with *Q. Vallonea*; though Dr. Hooker admits *Q. Castaneæfolia* as distinct from *Q. Vallonea*.

In any case, from the likeness of the leaf and general appearance, no better name could be given to our Shan-tung oak than the "Chestnut-leaved oak," *Quercus Castaneæfolia*, and its Chinese name of Hsiang Li points to the likeness, the exact meaning being—"Oak chestnut." However, it has been often designated by the names of *Quercus Serrata* or *Quercus Sinensis*. The *Quercus Serrata* of Japan and Manchuria, studied by Thunberg, has been recognized by Miguel to be the very same as *Q. Castaneæfolia*, and specimens of Chefoo oak leaves, sent to Dr. Hance, have been identified by him and recognized as being those of *Q. Serrata*, so that there is not the least doubt that these names apply to the same tree. And, in conclusion, *Quercus Serrata* Thumb, or "Sinensis," Bge., is the real *Quercus Castaneæfolia*, c.A.M., closely allied to *Quercus Vallonea*, kty., and the one specially used in Shan-tung for rearing the worms of *Bombyx Pernyi*.

It is not so easy to find the exact Chinese name for this oak, the native botanical works being full of synonyms and the distinction of species being based on two fanciful differences.

But the *Quercus Castaneæfolia* is not the only tree on which the worms of *Bombyx Pernyi* can be reared; in the north of Chi-li and in Manchuria they are also fed on the species of oak known as *Quercus Mongolica* Fisch., of which we possess a few in Shan-tung. The leaves resemble those of *Quercus Robur* of Europe; the acorns are entirely concealed by the "squammæ" of the cupule, which look much like hairs and are closely pressed, instead of being more or less reflex. De Caudolle's description of the cupule (which is sericeous inside), as having: "*squammas ombracatas, adpressas, dorso convexas*" is very accurate. "These feathery filaments give the cups the appearance of a small fur cap. The leaves are shining above, opaque and glaucescent beneath, and, when young, dotted with short white hairs; the full grown ones have also usually a few long weak hairs along the costa and primary veins; but these are scarcely to be noticed without a lens." In the Newchwang district this tree is very common and the one used specially for feeding the silkworm; it is called there "siaoeh'ing-kang, small-leaved-oak." In Kueichou it is known under the name of "Fu-li."

The third kind of oak on which this worm can be fed, but which is rather rare in Shan-tung, is the *Quercus dentata*, Thunbg, with immense leaves, often measuring thirty and more centimetres in length, and turning to a fine purple red in autumn. Their under surface, as well as the young branches, are covered with a downy pubescence. The acorn cup resembles the one of *Quercus Mongolica*, being also covered with longish feathery filaments, but the acorn is larger. This tree, common on the hills near Newchwang, bears the different names of Ta-ch'ing-kang-liu, Ta-yeh-tso-shu, that is "large-leaved-oak," but it is also called Hu-po-lo.

There is also a small bush called shih, which has nothing in common with the oak, and whose leaves are also used in Manchuria for feeding the oak silkworms, whose silk is then said to be of better quality. In Shan-tung the leaves of the "shih" are only used when those of the oak are deficient.

"From the close alliance of *Quercus Mongolica* and *Quercus Dentata* to the *Quercus Robur* of Europe there seems no reason whatever why the Chinese oak-worm could not be thoroughly domesticated in Europe." In fact, experiments have been made in Italy and France with the native oaks of both countries, and these experiments proved the possibility of feeding the insect on these European species of oaks, so that the problem of the acclimatization of the *Bombyx Pernyi* in Europe is greatly facilitated by this.

In what precedes we have seen that the Jesuit missionaries knew that the Chinese manufactured three species of silken fabrics from the cocoons of silkworms differing entirely from the *Bombyx Mori*, reared in a different manner and fed upon the leaves of different kinds of trees, amongst which, from their description, we recognize the *Zanthoxylum*, the Chinese pepper tree, *Poirvriera de la Chine*, and a tree which they describe as a kind of ash but is nothing else than the *Ailanthus glandulosa*. Du Halde says also that these worms were fed by the Emperor K'ang-hsi on the leaves of the Manchurian oaks near Gehol. This is the first notice of the oak silkworm of China we can find in foreign books.

About the year 1849 or 1850, some specimens of the oak-silk cocoons were seen by Mr. H. Major, of Shanghai, in the museum of the Chamber of Commerce at Lyons, and recognized as identical with those of Northern China, from where they had been sent (probably 100 years previously) by the Roman Catholic missionaries. In the year 1851, the Reverend F. Annilal Fantoni, a Roman Catholic missionary in the province of Shan-tung, sent to the King of Italy cocoons, skeins of silk and some silk piece goods, all obtained from the silkworm of the oak. In 1856, some more were sent and exhibited by the same missionary in the international exhibition of Turin. The orders of St. Mauritius and St. Lazarus were conferred by the Italian government on F. Fantoni, and the oak-moth having been studied and found to be a new species, different from all those known at the time, it was called after the importer *Bombyx Fantoni*, by which name it is still known in Italy. Some cocoons having been also sent to the *Société d'Acclimatation*, the title of member for life was conferred upon the Franciscan priest in recognition of this service.

A few years later, a French missionary, M. l'Abbé P. Perny, of the *Missions Etrangères* brought to France some of these cocoons, and thought they were the very same as those we have just spoken of, the name was changed into the one of *Bombyx Pernyi*. We find it again described as a new species in a small pamphlet published by Mr. Guérin Meneville, in 1869.

In 1866, Dr. McCartee, after a short residence in Chefoo, wrote a paper "On some Chinese silkworms;" having examined some of the moths, procured from the silk growers, he recognized it as the *Saturnia Mylitta* figured in Jardine's Naturalist's Library, and also called *Attacus* or *Bombyx Mylitta*, the tusseh moth of India.

All those names are now forgotten, and in the latest publications on this subject, the insect having been at last recognized as an *Attacus* (on account of the four spots or eyes in the wings), and found different from the *Attacus Mylitta*, it is now always designated as *Attacus Pernyi*.

Descriptions of the Moth.—The moth is a beautiful insect of the family of the *Bombycidae*, genus *Attacus*. It measures some 15 "centimetres" with spread wings. The general colour is a rosy brown or golden hue; the wings, covered with a soft velvety down, are marked each with an eye or transparent round spot formed by the naked membrane of the wing. These distinctive marks, bordered with yellow, are surrounded by a circle or oval whose half is a double line of black and yellow, the other half being formed by two lines of rose and white. Broader than the two former ones, they elongate the circle in that direction, making it more like an oval. Under these spots the wings are barred transversely by a double line of white and brown in the females, and rose and brown in the males. Besides these there are

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two rose and wans lines near the body. The superior border or nerve of the two upper wings is of a rosy colour, powdered with white. The males are smaller than the females, and their deeply combed antennæ are four times broader than those of the females.

The Eggs.—The eggs are round, of a deep brown or chestnut colour; and slightly depressed. They measure from two and a half to three “millimetres” in diameter and are exceedingly strong and hard. It requires 135 of them to make one “gramme” in weight. They are covered by a kind of gum, by means of which they are solidly fixed to the surface of the leaves or on the branches, and also made impervious to water. According to the Chinese, each female produces about one hundred eggs; in Italy they were found to give as many as 150 as a mean. Sometimes white eggs have been observed, which proved as good as the brown ones. The bad eggs are easily distinguished from the good ones by the fact that they shrink and flatten, losing in weight. A good many of the eggs are left in the abdomen of the moth, as the mean number of them has been found to be about 218. “Il numero medio delle usva contenute nell'addome di ogni farfalla è di 218.”

The Worm.—Just out of the egg, the worm is a small black insect, called “maio” or black ant “hei i” on account of its size; it measures four or five “millimetres” in length. After the first “muta,” the Italian name for change of skin, in French “mue,” it turns to a bright green colour. Just before spinning its cocoon it is described as follows by Mr. Meadows, in his consular report for the port of Newchwang. “The caterpillar is a green-bodied grub, measuring from nine to ten ‘centimetres’ in length, with a light brown head; on its pale brown face there are six or eight small black specks (probably the eyes). Its body has twelve joints; on eight of these it has on each a pair of claws, five pairs of what I shall call back claws on the hinder part of the body, and three pairs of front claws on the forward part. The hindmost or tail joint has a pair of the back claws; then come two joints, without claws, and then the three foremost joints, each with a pair of the front claws. The five pairs of the back claws are less developed as claws than the front ones, being, to outward appearance, of the same soft green matter that the body is composed of, and merely tipped with a small piece of hard substance of the same light brown colour as the head (it is a coronet of little sharp hooks). The three pairs of front claws, are on the other hand curved, pointed, and entirely composed of the hard light brown substance. The five pairs of back claws serve as feet, by means of which the animal holds on to the twig or stem part of the leaf (and with such a force that one might tear the insect into pieces rather than make it leave its hold), while the front claws serve as hands, by means of which it twists round the edge of the leaf to its mouth. A little above the claws on each side there is on each joint or segment a bright blue speck, out of which a few hairs grow. A little above those blue specks there is on each side, down the last or tailmost nine joints, a brownish streak, which two streaks widen and join together as a brown band on the tail joint. On the last four or five joints towards the tail, there are on this brown streak two golden or yellow metallic-coloured spots on each side. The brown band does not extend to the foremost three joints; on the other hand, each of these joints has two azure-blue specks on each side, one above or higher up than the other. The animal is thickest about the second and third joints, counting from the head, and tapers off somewhat toward the tail.”

The Cocoons.—The cocoons of the *Attacus Pernyi* are very large, measuring usually five “centimetres” in length and three in diameter, without the floss silk, but some are much larger. Their shape is ovoid, their colour pale buff or ochre yellow, and they often bear on their surface the impression of the oak leaf on which they had been sticking. The outer covering is terminated at one end, which is always found to correspond to the head of the chrysalis, in a cord which fixes them to the branch. The substance of the cocoon itself can be easily separated into three or four distinct layers, which seem to correspond with the changes of the skin of the insect. When liberating itself, the moth does not cut or injure in any way the thread of the cocoon. Indeed the silk thread at the end corresponding to the head of the aurelia is bent in quantities of loops brought together and connected by a

kind of gum, which is found in the whole structure and renders it impervious to water. When the moth is about to leave its prison, a liquid (probably of alkaline nature) is secreted from the mouth of the insect. This dissolves the gum, and the moth, by knocking and pushing with its head, easily opens the cocoon without breaking a single thread. The edges of the aperture, strongly coloured in brown by the softening liquid, appear then like the end of a piece of knitting from which the needles have been withdrawn, so that these cocoons before and after the "éclosion" are fit for reeling; but it is only of late that a method has been discovered in France for reeling them when opened. The method consists in forcing into each cocoon an artificial chrysalis of vulcanized india-rubber, fixed on a pin, on which the cocoon revolves.

The Rearing.—The reader being now sufficiently acquainted with the insect under its different forms, we will proceed to describe how these wild silkworms are reared by the Shan-tung silk-growers. The following information was gathered from the great Chinese Botany, and also from the depositions of about twenty of the silk-growers, carefully put down in writing by my Chinese teacher.

1. *Choosing the Ground.*—The best soil for rearing the oaks is a rich loam or humus, next comes ground of a half sandy half argillaceous nature; a calcareous or sandy soil is bad, the leaves of the oak being then small and hard. If the ground is covered with too many stones the worms which fall upon them in summer are killed by the heat; in order to avoid that, it is recommended to allow the grass to grow between the trees. The worms, according to the natives, hate much dampness and like a dry atmosphere, though they are not injured by an occasional rain. For the spring crop of cocoons the Southern slope of the hills is generally chosen. Towards summer it becomes too hot and a northern exposure is preferred. The natives explain this by saying that the north and south are influenced the first by the Yin, the second by the Yang, that is, the two principles of creation or life, the generative powers of nature, which play a great part in all Chinese superstitions and serve to explain whatever they otherwise cannot account for.

The two kinds of oak in use are *Quercus Dentata* and *Quercus Castaneefolia*, but specially the latter, whose acorns are carefully collected. Small holes are dug about one foot deep, distant from each other about two or three feet. A few acorns are then deposited in each, having been previously dipped in pig's blood, which acts as manure; but the natives say that it prevents the rats from eating them. A small quantity of manure made from powdered beancake is added, and wheat is sown between the lines to utilize the ground. The trees are never allowed to grow more than five or six feet high, for the convenience of placing the worms on them and of collecting the cocoons, besides the leaves are more tender than those of old grown trees. When they are five or six years old, they are accordingly cut off close to the roots, and in order to obtain a better quality of leaves, this operation is repeated every two years. This ensures for the following years an abundant supply of young branches not more than a few feet high, covered with large and tender leaves and called "huo-ya" or "t'eu-ya." These are used specially for feeding the young worms. The old worms, from the third to the fifth age, cannot be fed on these tender leaves, as they would soon die of diarrhœa; but another field of oaks, where the branches have not been cured for two or three years, is kept for the purpose. The branches of these trees are called accordingly "erh ya" or "san ya," that is second or third year twigs.

So that in a well-conducted plantation there are always two sets of trees cut alternately every year and used as follows in rotation with the two crops of cocoons.

In explanation of this, let us suppose there are one hundred oak trees. These must be divided into two sections; each section to be cut separately at the interval of one year. Thus out of one hundred trees, fifty cut in November, 1876, will serve for raising the second yearly production of cocoons in August, 1877, and the first yearly production in May, 1878; while the other fifty trees, cut in November, 1877, will serve for the second yearly production in 1878, and the first yearly production in May, 1879.

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When once this system is established, it is followed up by recutting every year that section of the bushes which has already served for two successive productions of cocoons, within two years. When the second production of one section takes place in spring, the recutting is effected in July, directly after the cocoons are gathered, and when it occurs in August, the recutting is done in November. In this way both sections are used alternately every year for each production of cocoons, allowing also ample time for the requisite growth of the bushes.

The acorns are given to the pigs, but in time of scarcity they are made into meal and eaten by the starving population; and a dish is made of the leaves. The young leaves being chosen are first dried, then steeped in water until they become of a yellow colour. The water is then changed and after being strained the leaves are eaten with salt and oil. The young branches cut annually are used for fuel, whilst the wood of the old trees is converted into an excellent charcoal called "Tso-tan" in Chefoo. The Chinese positively lose nothing; every part of this oak is useful, and they assert that the tree will stand cutting for one hundred years.

The Rearing of the Worms.—Let us follow the practical system of silkworm rearing.

The autumnal cocoons "Ch'ü chien" retained for obtaining seed, must be kept during the winter at a uniform temperature, taking care not to expose them to any heat above fifteen degrees centigrade, which would cause the opening of the cocoons. In Shan-tung the mean temperature of Chinese dwellings, in winter, ranges from two degrees above zero centigrade to two degrees below.

The natives do not seem to trouble themselves much about the action of the frost on the cocoons, which are often left in rooms where fire is never made. They even say that in cold winters the moth develops itself better and is more vigorous.

At the approach of spring, when the oaks begin to bud,—they show their flowers about the 15th of April, and their leaves on the first days of May,—the cocoons intended for reproduction are strung together on a thread and suspended in rows along the walls of the room. Great care must be taken that the chrysalis is not injured by the needle, and also that the cocoons are not threaded through the end corresponding to the head of the moth, whose exit would be then made impossible. These two evils will be avoided by threading the cocoon as near as possible to the extremity which is devoid of the cord-like appendage. Whilst threading the cocoons all those which are too light or give no sound when shaken near the ear are to be rejected, the chrysalis being dead inside. About one-half must be chosen amongst the largest and heaviest, those being the ones containing females. In some places the cocoons are not strung, but simply placed on bamboo screens; but the silk-growers assert with reason that this is objectionable, as the moth often drags the cocoon behind it and often dies, being unable to free itself from its encumbrance.

If the oak leaves are too long in making their appearance, the natives know how to retard the eclosion of the cocoons, and as they do not possess the ice-box of our silk-growers, they simply place their cocoons in a deep hole dug in the ground, which they carefully cover. On the contrary, heat is used to bring out the eclosion in the following way. The strings of cocoons, each about one foot long, being suspended, both ends together, the doors and windows of the room are carefully pasted over with paper, to prevent the winds or streams of cold air from getting in. The room is then warmed by heating the stove-bed or kang with sorghum stalks, or simply by a charcoal burner or brasero placed in the middle of the apartment. The charcoal must be made of the oak-wood itself. If the wood of the Yu-tung-shu "*Oleococca Vernicia*" is used for this purpose the insects are killed by its fumes. According to the Chinese Botany the cocoons are warmed for about forty-three days,—from the Li-ch'un, 6th February, to the Ch'un-fen, 20th of March. In Shan-tung this operation, which is called "Hung-chien" *i.e.*, warming the cocoons, generally takes place about the 20th of March, and lasts four or five days. If the temperature is too high, the eggs of the moth will be red, if too low they will be white, and will furnish bad worms. The Chinese houses being low and generally built of mud and covered with straw, having no other openings than a door and one or two windows, there is always a certain degree of humidity in the atmosphere. Were the

cocoons treated in foreign houses, it would be necessary to moisten them slightly to facilitate their opening. About the 5th of April the moths issue from the cocoon, generally between 6 and 7 o'clock in the afternoon. The moths are allowed a few hours for drying their wings, then they are placed in the pairing baskets in the following way: About one hundred females are placed in a circular basket, and one hundred males in another (the baskets are lined with paper to keep the cold off), the latter is now turned upside down upon the former and the insects are soon coupled. After three or four hours the baskets are opened and the now coupled insects are placed in other baskets. In Kuei-chow each coupled pair is also taken out and placed in another basket, only a few pairs being allowed for each basket. If the insects are too lively and do not pair, they are exposed for a few minutes to the smoke of an oak fire. After a lapse of twenty-four hours the males are separated from the females—which would otherwise swell up and die—and given to the poultry. Sometimes they are even eaten by the natives themselves. If the number of females is larger than that of the males, the latter are then used to fecundate a second lot of the former, but in this case only a small portion of the eggs prove fertile.

The fecundated females are now placed in a large basket, whose lower part has been previously covered outside with a coating of clay dried in the sun, the whole of the inside being lined with paper, with the exception of the cover, to allow ventilation. These baskets, made from willow twigs or oak branches, are seven or eight inches high and one foot and a half to two feet broad. If the females do not lay their eggs quick enough, they are induced to do so by the application of a gentle heat and smoke to the bottom of the basket. It takes them about one day to lay their eggs, after which they are thrown to the poultry, but never eaten by the natives, who assert that they are not so palatable as the males. About 100 females having been placed in the basket, each of which lays about 100 eggs, any such basket represents at least 50,000 eggs, called "luan." Out of these, deducting the bad ones and the deaths amongst the young worms, a total of nearly 30,000 cocoons can be obtained, and this is considered an excellent crop; 20,000 cocoons is a good result, and 10,000 a poor one. One authority adds that if the cocoons have been badly warmed the crop may prove a total failure.

About the 18th of April the basket containing the eggs is fixed on a small tripod and placed on the kang or stove-bed, which is gently fired every morning. Every day a few of the eggs are pierced through with a needle and their contents examined. If the shape of the worm is seen inside, the firing is stopped for one or two days, and the worms are soon hatched. The number of days between the time of laying and the hatching is about twelve, some say from fifteen to twenty-five; in fact it varies according to the temperature, the most favourable one being about 21° c. This is the temperature of the season in fine weather. The Chinese also know how to hasten the "eclosion" by sprinkling some warm water into the basket, which is then covered and placed on the warmed kang; the eggs so treated will hatch five or six days sooner.

We have now arrived at the beginning of May, and the oaks are covered with young and tender leaves. The worms must be now taken to the hills and placed on the trees. Two methods are used for feeding the small insects during their first stage. The first method, called "shui-chang," is as follows: Young branches of the oak are cut two or three feet long, and stuck in wet mud or sand on the banks of some mountain stream. In the second method, called "Han-tun," these branches are simply fastened together in a bundle which is placed by the cut ends in a tub or some vessel containing water. In both cases care must be taken that the place is well sheltered and not too much exposed to the winds. The water will keep the leaves green and fresh long enough for the worms, which have been placed upon them, to pass through the first age. After four or five days they have their first sleep and cast their skin; they are now of a green colour and ready to be placed on the trees. Some of the silk-growers, directly the worms are hatched, take the baskets to the hills and place them amongst the young branches of the trees called "Huo-ya," upon which the young worms soon find their way. These worms are not of a vagrant nature like a good many caterpillars, on the contrary

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they will remain on the trees as long as there are leaves for them to eat. Then they are removed, either by cutting the branches, or with the help of a smooth brush, and placed on other trees. The spring worms have generally four sleeps called "mien," after each of which they cast their skin; the operation which is called "Tui-p'i" constitutes the *four ages* of the worm. Each sleep lasts one day, two if it rains. Sometimes these spring worms have five sleeps and skin castings, which we will call "moult" from the Italian "muta" (a change of skin or feathers); but then the autumn generation obtained from them has only four. On the contrary, if the spring worms have only four "moult," their autumnal offspring will have five. So that between the two crops of cocoon, the worms always have nine "moult," which are distributed as follows for each generation.—

1st moult	from 4 to 5 days,
2nd "	" 7 " 8 "
3rd "	" 9 " 10 "
4th "	" 10 " 11 "
5th "	" 12 " 13 "

having in the average, from the hatching to the beginning of formation of cocoon, a period of about 45 days.

The Chinese have remarked that the worms, before casting their skin, fasten their hind legs to the branch or leaf, with a kind of gum or silky matter, and they are careful not to touch the worms during their sleep. After each sleep the worms eat greedily, but they must not be allowed to eat the young red coloured and tender leaves of the young shoots, as it gives them diarrhoea. During the heat of the day and in rainy weather they generally remain fixed to the under side of the leaves. However, rain does not seem to injure them and they have been observed drinking the dew drops with avidity. After the last sleep, 4th or 5th, the grubs eat with voracity, consuming as many as seven leaves in twenty-four hours. They increase rapidly in size, and change their name "Tsan," worms, for the one of "Chuang-piao" "the big fats." Ten days more and they stop eating; their brilliant green colour fades a little and they are reduced in size. They now fasten a few leaves together with a loose texture of floss silk and spin their cocoons, which operation takes two or three days; but as a general rule these cocoons are only gathered after the fifth day, in order to give time for the complete formation of cocoon and aurelia. This first crop is ready about the 21st of June.

Whilst the worms are feeding on the trees it is necessary to keep good watch to prevent the birds from eating them. The bird which seems to be the most dangerous for the worms is the common quail, which comes here in thousands during the months of May and June. The natives frighten them away by frequent discharges of guns and firecrackers or by constantly beating on a hollow bamboo. Great care must be taken that the plantation is kept free from insects. A kind of centipede known under the name of "Yiu-ch'ung," is fond of eating the worms. On the trees they are not attacked by ants, but if they fall on the ground these small insects will gather round the unfortunate worm and devour it on the spot or carry it bodily to their nest. Toads are also fond of the silkworm, and snakes are charged with a similar accusation. A kind of gad-fly, perhaps the "Uji," "Ujimya sericaria" of the Japanese, places its eggs in the body of the worm, which soon falls a victim to the internal enemy; if it succeeds to spin its cocoon, the fly pierces it and renders it useless for reeling. Women are not to be allowed on the plantations, as their presence is supposed to be pernicious to the worms, which are said to have a strong dislike for the weaker sex. The emanations of the "Yu-tung-shu" the *Oleococca Vernicia*, being mortal to the worms, this tree must be carefully destroyed in the neighbourhood. The spring cocoons are lighter and thinner than the autumn cocoons; the silk is finer, and the second coat is of a very pale colour. As there is also little gum, the silk obtained from them is of first quality and the natives say that it will easily take brilliant colours in dyeing.

Second crop.—The cocoons being gathered from the trees are spread out to allow the gum and leaves to dry. The dead leaves are then taken off and the cocoons are

ready for reeling. Those which are reserved for the second yearly production are then strung together, as mentioned above, for the first production, and hung in a cool room of the temperature of summer, about 30° C being quite sufficient. After twelve or fifteen days from the gathering of the cocoons, the moths will issue from them, and the whole process of coupling them, placing them in the baskets, etc., has to be gone through once more, with the difference, however, that the coupling baskets are not provided with paper in the interior on account of the high temperature of the season, and that the female moths, after being separated from the males, instead of being placed in baskets, are fastened with a thread round the lower wings. This thread, a few inches long, is then attached to bunches of freshly-cut branches with leaves, which are suspended by their cut ends in a cool and well-ventilated room. On these branches and leaves the female moth lays her eggs. After a few days (8 to 12) the worms are hatched and the branches are straightway carried to the oak bushes. About seventy days later, that is towards the 8th of September, the second crop is ready. A bright dry day is then chosen for the collection of these cocoons, called "Chiu-chien," autumn cocoons, whilst those of the first crop are called "Ch'un-chien," spring cocoons. The autumn cocoons, being intended by nature to withstand the inclemency of the winter months are thicker than the spring ones, there is more gum in their substance, and as the worms have been feeding on older leaves, the silk is not so fine and not so clear-coloured as that of the Ch'un-chien.

Near Wen-teng-hsien, where the best cocoons are to be found, 1,000 well-formed cocoons weigh from 17 to 18 catties with the chrysalis inside; they give about 1 catty (601.28 grammes) of silk.

Diseases of Silkworms.—The Chinese books and native accounts describe three kinds of diseases.

1. The "Yi," in which the worms are found hanging dead at the extremity of a small silk thread.

2. The "Pau" or spotted disease, in which the worms are covered with little black spots, and of which they soon die.

According to the usual theories of influences, the "Yi" is attributed to cold and the "Pau" to extreme heat. This last is considered contagious.

3. A third disease, very likely the one known in France under the name of "Muscardino"—which is due to a parasitic growth in the body of the worm,—is described as follows: If the temperature suddenly changes from heat to cold or *vice versa*, the worms of the third age are seen covered all over with silky threads, which are said to be the silk matter exuding through the pores of the skin. This disease, called the "flying silk," kills the worms in the space of one or two days.

Lucky Worms.—Some curiously marked or spotted worms are considered lucky, and if the silk grower can discover amongst his insects some dark-coloured caterpillar, some light yellow or brown ones with reddish hairs, he rejoices over the prospects of a good crop.

As may be seen by the above, the *Attacus Pernyi*, being a bivoltine species, passes the winter in the cocoon, whilst the mulberry silkworm passes it in the egg, though some varieties are also bivoltine.

This peculiarity of the oak-silkworm has caused a great many difficulties with attempts made to acclimatise this worm in different countries. In numerous cases the cocoons in passing through the heat of the tropics were brought to maturity too soon and the moths opened the cocoons and died.

The Chinese themselves have met with some difficulties in their endeavours to establish this oak-silk manufacture in the southern provinces. The following sketch of their labours may prove of some interest.

A Chinese mandarin named Ch'en Hseng-ngan, a native of Shan-tung, being Prefect of Tsun-I fu, in the province of Kuei-chou, remarked that the oak trees of this prefecture were similar to those of his native place in Shan-tung. Desirous to be useful to the people he governed, and to prove himself the real "Father and mother of the people," as the Chinese magistrates usually style themselves, he sent some of his officers on a special mission to bring him cocoons and oak-silk artisans

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from Shantung. The messengers started for home with the cocoons, but unhappily they were too long on the road and the heat of the spring caused the opening of the cocoons, as they passed through Hunan. This was in 1739; the next year, more precautions were taken, and the cocoons arrived in good order, but unfortunately the summer was extremely hot and the natives did not protect the worms sufficiently from the heat, which killed nearly all of them, the cocoons obtained were badly warmed, and this second experiment was also a failure. The Prefect, without losing patience or courage, sent again to Shan-tung, and, having procured cocoons and a certain number of skilled workmen, he made a new trial in his own gardens, taking personally great trouble in the matter. He succeeded at last and, in the eighth year of the reign of Kien-Lung, 1744, his efforts were rewarded with success, and the crop amounted to eight millions of cocoons. The trade is now flourishing in the mountainous districts of Kuei-chou, and the noise of the silk reeling and weaving apparatus is heard everywhere. The Chinese author, in his admiration, compares the fame of the Kuei-chou pongees to that of the Su-chou damasks or Szu ch'uan brocades. This silk, he adds, is also mixed with the mulberry one for the manufacture of the Cheh-kiang silk crapes.

The importation of these cocoons into Europe has met with similar difficulties, but they can now be found cultivated in France, Italy and other countries. However, the prize instituted for its greatest success and utility has not yet been awarded. The *Société d'Acclimatation* promises £40 to any one who can present fifty yards of Ponjee manufactured entirely from home-reared cocoons, the competition being open till 1880.

The nature of the oak-silk cocoon being widely different from the one of the *Sericaria Mori*, the operations connected with its reeling or spinning are necessarily different, and require a few words of notice. There are two modes of using the silk of the cocoons. The first is called "kuang" or reeling, and the second "fang" or spinning.

1. *Reeling*.—The outer covering of floss silk being taken from the cocoons, they are then treated with carbonate of soda or of potash, in one of the following ways: The first method is called by the Chinese "Shui-kuang" or water reeling. About 1,000 cocoons are placed in an iron caldron with one-half pound of crude soda, "Tu ch'ien," and enough of water to cover the cocoons. This carbonate of soda comes from central and western Shan-tung or from Manchuria. The best quality is worth from sixty to seventy cash a catty. It is often replaced by strong lye obtained in treating with hot water the ashes of the oak-wood, which are carefully kept for this purpose. When the gum of the cocoons has been well softened or dissolved by the alkalies, search is made for the extremity of the cocoon's thread, and a certain number of them, varying from five to twelve, are reeled together.

In the second method, called "dry reeling," "Hian Kuang," the cocoons, after having been well soaked in the alkaline lye made from the oak-wood ashes, are carefully washed with clear water and reeled dry, being put on a table, or in a basket sometimes placed over a vase containing boiling water; thence the name of "steam reeled" given to this method by foreigners.

The inner coat of the cocoon is never reeled, but with the floss silk it constitutes the silk's waste, an article much used here for wadding clothes and quilts, and also exported to England, where it is converted into different cheap goods, as a kind of velvet, etc. The dead chrysalis is eaten with relish by the natives.

2. *Spinning*.—The spring cocoons being of a finer quality of silk, are generally reeled whilst the autumn ones are spun. This is done by hand only, or by the help of a spinning machine. Both the spring and autumn perforated cocoons, called "mao-chien," are spun. After the remains of the chrysalis have been extracted by means of an iron hook, the cocoons are boiled with soda, then washed with clear water, turned inside out, and placed one upon the other, to the number of about ten, at the extremity of a small stick or piece of bamboo—generally a chopstick—used as a distaff. An iron hook, covered with two halves of a bamboo tube and loaded with a few cash, constitutes a spindle. The thread is unravelled and twisted by the fingers, exactly as our grandmothers used to do with flax or hemp, before the invention of the "Jenny." This kind of work can be seen performed by men in the streets of Chefoo every day.

A kind of spinning wheel, much resembling ours and also set in motion by the foot, is used under the name of "Fong-chih."

The name of the wheel upon which the cocoon thread is reeled is "Pang-chih"; in Cantonese, "Bung-ch'e." This is most likely the origin of the word Pongee, in French "Pongée."

The threads used for weaving are now divided into water-reeled and steam-reeled, finger-spun or machine-spun. The best and most durable piece goods are made from the spun thread, but they are never exported.

The Shantung pongee piece goods, woven on a primitive loom, generally measure five changs in length or 15.75 metres (1 chang=10 feet=3.15 metres), but there are also pieces of six and seven changs. The breadth, though variable, is never more than about two feet. They are sold according to their weight, which is always found printed on the edge, and which varies from 25 to 38 or 40 taels (1 tael=37.58 grammes), or from 1 kilogramme to 1.50 kilo.; their price varying accordingly from 3 to 8 dollars per piece. One piece can make two Chinese robes, and one piece and a half is sufficient for a foreign lady's dress. The weavers are paid by the piece, the average price being 350 cash per piece. It takes a skilled workman three days to finish one piece; an ordinary weaver will take as many as five or six days to do the same work. The earnings of the pongee weavers can then be considered to average from 70 to 116 cash per diem, the wages of a skilled mason or stone-cutter being from 150 to 210 cash.

The Shantung pongee looks uncommonly like the Tusseh silk of India, with which it has been often confounded; the latter seems to me deeper in colour, finer and more brilliant in the fibre. It can be still more easily confounded with the Japanese pongees made from the silk of "*Attacus Yama-mai*," but it has been declared a far superior kind of silk to the Japanese. It is more brilliant, more supple, and is reeled with greater facility.

As the pongee is sold by weight, the native dealers often cheat, by sizing their goods with rich starch or other kinds of gums. But pieces made from different shades of silk are dyed an amber colour by the use of the mangrove bark, and they then resemble the better qualities. The second quality silks are also dyed gray, brown and other dark colours, the only pretty colour being a kind of iron or pearl gray.

Attempts have been made in Bruxelles to manufacture stockings from the floss silk, but unfortunately these articles shrink so much after washing that the attempt has proved a failure. Lately an imitation Shantung pongee has been much imported from France—where it is manufactured—into Germany, and has proved superior to the Chinese stuffs.

The value of the oak silk is still under discussion, and the only point of practical importance as yet ascertained regarding it is that it cannot without much difficulty be worked up with the common silkworm product. No method has yet been found for bleaching it, and its affinity for mordants being very small it is impossible to dye it with success, the only colours which can take well being black and different shades of gray—probably on account of tannic acid which may exist in its composition. A magnificent article, of a black colour with golden tears, was once made from it in Lyons, and I read in the "Bulletin de la Société d'acclimatation" that last year (1876) some beautiful shawls, dyed with brilliant colours, had been manufactured in Lyons from this silk. The silks sent from Shan-tung are highly hygroscopic, but this is likely due to the coarse way of reeling used by the Chinese, who use an excess of potash or soda. I have seen samples of this silk reeled in China by Europeans, and which with superior lustre and brilliancy did not seem to possess this drawback. A large silk reeling establishment under the supervision of foreigners is now in process of completion near Chefoo. The silk cocoons of the oak will be treated there after the most improved European methods.

In conclusion, I have no doubt that were the Chinese silk growers directed by scientific men in the manipulation of this silk, it would prove a far more valuable article. If, as I am persuaded, the acclimitization of these worms succeeds in

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Europe, it will also prove a great source of riches for the oak-growing districts of the continent, as it is an article specially adapted for the manufacture of cheap and solid goods, considering that it wears excellently, and can wash as well as linen, being also impervious to stains.

A. A. FAUVEL,
Imperial Maritime Customs.

No. 8.

AN ACT IN RESTRAINT OF FRAUDULENT SALE OR MARKING.

(CAP. 37, 57-58 VIC.)

Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. No person shall mark, brand or label any article or any package containing any article mentioned in the first column of schedule A to this Act, with the word "pure," "genuine" or any word equivalent thereto, or sell, or offer or expose for sale any such article or package so marked, branded, stamped or labelled, unless such article or the contents of such package are pure within the meaning of the second column of the said schedule.

2. No person shall sell, or offer or expose for sale, any article or any substance for domestic use under the name or designation contained in the first column of schedule B to this Act, unless such article or substance is free from adulteration or admixture of foreign matter and unless it possesses the composition and distinguishing characteristics stated in the second column of the said schedule.

3. Every person who violates any of the provisions of section one or section two of this Act shall, for every violation, be liable to a penalty of one hundred dollars, a moiety of which penalty shall belong to the prosecutor, and the other moiety to the Crown.

2. The penalty hereby imposed may be recovered and enforced in the manner provided by *The Inland Revenue Act* with respect to penalties incurred under it, and as if imposed by it.

3. The penalty hereby imposed shall not apply as respects the third article mentioned in schedule B until the first day of October in the present year, one thousand eight hundred and ninety-four.

4. The Governor in Council may add any articles to the schedules to this Act, and determine the standard of purity therefor, and may remove any articles from the said schedules; and the Order in Council in that behalf shall be published in four successive issues of the *Canada Gazette*, after which it shall have like effect as if such articles had been included in the said original schedules.

2. Any Order in Council made under the provisions of this section shall have effect only until the end of the next succeeding session of Parliament.

5. The Minister of Inland Revenue may order any officer of the Inland Revenue or Customs to obtain samples of any of the articles or substances mentioned in the said schedules; but in such case the manner of obtaining such samples shall be that prescribed with respect to the obtaining of samples under the *Act respecting the Adulteration of Food, Drugs and Agricultural Fertilizers*, and the provisions of sections six to thirteen of the said Act, both inclusive, shall, so far as they are applicable and are not inconsistent with this Act, be held to have force and effect in relation to such articles as though such articles were articles of food within the meaning of the said Act.

6. Chapter thirty-two of the statutes of 1891, intituled *An Act in restraint of Fraudulent Marking*, is hereby repealed.

SCHEDULE A.

1	2
Dry white lead.....	Basic carbonate of lead prepared by corrosion of metallic lead.
White lead in oil	Dry white lead ground in pure linseed oil in the proportion of 90 to 92 per cent of the former to 8 to 10 per cent of the latter.

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SCHEDULE B.

1	2
Paris Green	An insecticide containing at least fifty per cent of arsenious acid and at least thirty per cent of cupric oxide and being completely soluble in aqueous ammonia.
Honey.	The matter of flowers and other saccharine exudations of plants gathered by bees and stored in cells built, at least in part, by the bees themselves.
Vinegar	A more or less coloured liquid, consisting essentially of impure dilute acetic acid obtained by the oxidation of wine, beer, cider or other alcoholic liquid.

No 9.

AN ACT FURTHER TO AMEND THE GENERAL INSPECTION ACT.

(CAP. 36, 57-58 VIC.)

Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. Paragraph (b) of subsection one of section two of *The General Inspection Act*, chapter ninety-nine of the Revised Statutes, is hereby repealed and the following substituted therefor:—

“(b.) Wheat and other grain, and hay;”

2. Section forty-four of the said Act is hereby amended by adding thereto the following subsections:—

“3. The grades of hay shall be as follows:—

“Prime Timothy Hay, shall be pure timothy, perfect in colour, sound and well cured;

“No. 1 Timothy, shall be timothy with not more than one-eighth of clover or other tame grasses mixed, of good colour, sound and well cured;

“No. 2 Timothy, shall be timothy with not more than one-third of clover or other tame grasses mixed, of good colour, sound and well cured;

“No. 3 Timothy, shall consist of at least fifty per cent of timothy and the balance of clover or other tame grasses mixed, of fair colour, sound and well cured;

“No. 1 Clover, shall be clover with not more than one-quarter of timothy or other tame grasses mixed, of good colour, sound and well cured;

“No. 2 Clover, shall be clover with not more than one-quarter of timothy or other tame grasses mixed, of fair colour, sound and well cured;

“No Grade, shall include all kinds of hay badly cured, stained or out of condition;

“Shipping Grade, shall be good condition regular shipping pressed hay, sound and well cured.

“4. The rates for the inspection of hay shall be as follows:—

“For every ton, twenty cents.”

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No. 10.

REPORT ON INTERNATIONAL MEDICAL CONGRESS AT ROME, 1894.

(W. TOBIN, F.R.C.S.)

HALIFAX, N.S., 25th November, 1894.

The Honourable
The Minister of Agriculture,
Ottawa.

SIR,—I have the honour to report that, availing myself of the authorization conveyed in your letters of the 30th January and 15th March, 1894, I attended the International Medical Congress, held in the city of Rome, in March and April last.

It was unfortunate that the meeting did not take place in September, 1893, the date originally fixed upon, but altered on account of the epidemic of cholera which prevailed in Italy, during that summer. A fuller attendance, especially from America might have been secured. However, it is computed, some seven thousand medical men and scientists with their families were gathered together in Rome, on this occasion, including about one hundred and thirty from Canada and the United States.

Special arrangements had been made by most of the different lines of transit throughout Europe and by some of the transatlantic steamship companies to facilitate the attendance of members at the Congress. The North German Lloyd, the Compagnie Transatlantique and the Hamburg and American line, on this side, deserve the cordial thanks of the profession.

On arrival in Rome, I presented the letters accrediting me to the proper authorities, and secured the usual marks of attention and courtesy extended to all national representatives.

The Congress was formally opened by His Majesty the King of Italy, in person, at the Cestanzi theatre, on the 29th of March, in the presence of the diplomatic body, the Ministers of the Crown, and the medical representatives of the various nationalities. The spacious theatre was filled with a brilliant assembly, including delegates to the Congress and members with their families, and a number of specially invited spectators. Addresses of welcome were tendered by His Majesty, the Prime Minister and the Minister of Public Instruction, and were suitably responded to by some of the more distinguished of the visitors.

The work of the Congress began immediately after with the organization of sections. The purely professional work resolved itself into general addresses delivered "in full Congress," and sectional meetings where papers on various branches of Medicine and Surgery, &c., were read and discussed.

The general meetings took place on the afternoon of each day, at the theatre in the Via di Geneva, a central part of the city, and were numerous attended. An address was delivered daily by one of the most eminent men in the profession, from various countries. I subjoin a list and will briefly summarize a few bearing on matters of general public interest, the great majority being of too technical a character to interest those outside the profession. The titles were:—

"On Morgagni and Anatomical thought" by Dr. Virchow, (Berlin).

"On the Organization of Science," by Prof. Foster, Cambridge University, (England).

"On the growth and regeneration of the organism," by Julius Bizzorero, (University of Turin).

"On the position of the State in respect to modern bacteriological research," by V. Bates, Prof. of Experimental Pathology, (University of Bucharest).

"On idiopathic hypertrophy of the heart, &c.," by Prof. Laache, (University of Christiania, Norway.)

"On the adaptation of the organism to pathological changes," by Prof. North-angel, (Vienna).

"On the part played by nervous debility in the production of fever," by Prof. Bouchard, (Paris).

"On Non Nocere," by Dr. Jacobi, New York.

"On the ground substance of protoplasm and its modification by life," by Dr. Danedenski, (of St. Petersburg, Russia).

"On the relation of chemistry to pharmacotherapy and *Materia Medica*," by Prof. Stokvis, (Amsterdam).

Prof. Foster in his address "On the organization of science," began by stating that the present tendency in science is towards specialization. Integration is required, that is reorganization on a basis that will bring scientific workers together. Everywhere we see waste of effort. Many kinds of inquiry might be benefited by concerted action, statistical inquiry for instance and skilled inquiry—by the latter he meant inquiry on a given subject by a number of specialists in that branch in different parts of the globe. It would be less expensive for governments, he said, to conduct scientific inquiries in common.

He proposed an international tribunal to fix the Nomenclature of science.

Also, the internationalization of such work as is done by the Zoological station at Naples. He also proposed the formation of an universal Index of scientific literature (failing to have the same literature classified according to subject and collected under one cover) as a good work for the present congress to inaugurate, as it would form an inestimable boon, and a great saving of labour to scientific workers of all nations.

Dr. Bates's (University of Bucharest) address on the position of the State in respect to Modern Bacteriological Research was thoroughly practical and interesting to Americans, as it touched on matters discussed at the meeting of the American Medical Association in Washington four years ago, and at the Pan-American Medical Congress, which met in the United States this year.

Dr. Bates began by dilating on the importance of hygiene, for economic reasons, to the State. He dwelt on the want of executive power extended to medical officers of health, and on their inadequate remuneration. He recommended the foundation of state-endowed sanitary institutions, where medical men could obtain the highest possible training in hygiene, and instanced the working of such an institution in Roumania.

Such Sanitary Institution should have: (1) a veterinary department for the study of diseases of animals, peculiar to themselves, and communicable to man; (2) a department of protective vaccination for animals and man; (3) a department of bacteriological research; (4) a chemical department for the examination of air, food and water; (5) a pathological department for the systematic examination of the dead from the hospitals with which the institution should be affiliated. This institution should be presided over by a competent medical man. He should have under him a teaching staff to give instruction to subordinate health officers. The elements of hygiene should also be taught to the general public here, or by competent teachers (possessing the diploma of the institution) in the public schools. A library, laboratory and lecture halls, &c., should form part of the public building provided.

He also recommended the foundation in each State of a ministry of public health, having a professional head, and a sanitary administration, under the Minister, but without his political instability. The administration should be independent of party politics, should be properly paid, and, on urgent occasions, should have the right of direction.

He insisted on the importance of bacteriological research in the interest of the public health.

Bacteriology has put us on sure ground in fighting disease (1) by the precautions it has taught us to take against the microbial contamination of air, food, soil and water; (2) by insuring or rectifying our diagnosis of such diseases as tuberculosis, cholera, small-pox, and the infective diseases of animals; (3) by giving us protective vaccination against such diseases as are communicable through bacteria

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from man to man, or from animals to man, such as hydrophobia, glanders, cholera and diphtheria (anthrax in sheep, &c.). Whatever progress medicine has made of late years, is mainly due to bacteriology. In its own interests the State should liberally encourage its study.

Dr. Jacobi, of New York, gave a very interesting address, taking for his motto "Non Nocere."

He showed the injury which the profession sustains in many ways, from specialism, from quackery, from the prescription of patent medicines in lieu of the pharmacopœan preparations, from running after new fashions in medicine, and new fads such as tuberculin, elixir vitæ, &c. He spoke of the abuse of the expectant treatment, on the one hand (the do nothing treatment) and the over use of operative measures and over drugging, on the other. He mentioned many mistakes made in the dieting and medical and surgical treatment of children especially, and wound up an exceedingly clever, interesting and thoroughly up to date paper, by insisting on the motto which headed his address—"Non Nocere"—do as little harm as possible.

The sectional meetings were held in the spacious rooms of the five pavilions of the new Polyclinic, situated near the old Campus Martius. There were nineteen sections in all, containing such subjects as: anatomy, physiology, medicine, surgery, legal medicine, hygiene, &c. Each section elected its president and vice-president and secretaries for each of the four official languages in which the business was transacted, viz.: English, French, German and Italian.

At first, great confusion prevailed in the various sections, partly due to want of system, partly inseparable from the polyglot character of the meeting. Few of the English speaking visitors understood Italian, though most spoke French and many German. The secretaries were unable to keep pace with the work, and no reliable report of the discussions could be obtained from them. The official Journal was only able to furnish the bare names of the papers to be read daily. As all nineteen sections were in session simultaneously, only the most meagre outline of the work done can be given.

The sections which attracted most attention were those of surgery, internal medicine, legal medicine and the various specialities. In the sections of internal medicine and pathology interesting debates took place on tuberculosis, vaccinia and small-pox, glanders and cancer. Malarial disease as prevalent in the United States, formed the subject of a paper by a clever young Canadian, Dr. Hewetson, of the Johns Hopkins University, from material furnished by the clinic of Dr. Osler.

In the section of hygiene, quarantine was discussed, and the uselessness of land quarantine demonstrated. The subject of the prevention of cholera was raised. It was shown that by isolation, disinfection and the precautions taken at the seaports, Italy had been saved from an extensive epidemic during the summer. The members of this section were taken to inspect the embankments now in course of construction along the Tiber, which, it is hoped, will improve the sanitary condition of the city.

The section of military medicine and surgery was largely attended by medical officers. The characteristic wounds inflicted by the new small bore rifle, recently introduced, were described and discussed. The principal military hospital of Rome was visited, and patterns of stretchers, as used in Germany and France, were exhibited. In the neighbourhood of the Polyclinic, the Association of the Italian Knights of Malta had erected a portable military hospital of fifty beds, which attracted much professional attention.

Simultaneously with the Congress an interesting exhibition of hygiene was being held in the city of Rome, at the Palazzo di Belle Arte, and drew many visitors.

In concluding this report, which I have endeavoured to make as little technical as possible, I cannot speak too highly of the kindness and hospitality extended to all by His Majesty, the Ministers of the Crown, notably the Minister of Public Instruction, Dr. Bacelli, who controlled the arrangements, the Syndic and the Municipality of Rome and the profession in Italy generally. His Holiness the Pope threw open the galleries of the Vatican. The city made us free to the monuments and art

collections under its care—entertainments and excursions were provided on a lavish scale. All was done in fact that could be done to make one's visit a memorable and pleasing one.

The only drawback to the success of the Congress lay in its numbers, it was too cumbersome to handle easily; and the polyglot character of the convention formed an insuperable obstacle to profit for many. This latter obstacle, it is contended, will lead in the near future to the extinction of these huge medical gatherings.

I have the honour to be, sir,
Your obedient servant,

W. TOBIN, F.R.C.S.I., &c.

Official delegate from Canada to the Congress at Rome.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 11.

REPORT ON CANADIAN STOCK FOR BRITISH MARKET.

(JAMES CHALMERS.)

11 CHARLOTTE STREET, PERTH, 16th May, 1894.

DEAR SIR,—I take the liberty of sending you some remarks and suggestions regarding the Canadian cattle traffic to this country.

For over 20 years I was engaged in farming in this neighbourhood, and have now retired from it. My experience consists in the selecting and feeding of Canadian cattle for the fat market, and as the salesmen were in the habit of offering prizes for the best animals at their shows, I was enabled to maintain a leading position in that line of feeding. I found the Canadian cattle to be more docile, and better feeders, consequently they made quicker progress than the Irish beasts. My greatest drawback was in getting a right selection of animals that would leave a fair profit, and in selling, the butchers insisted on getting both Canadian and Irish cattle cheaper by from £1 to £2 per head than the homebred animals.

One of the best selections I made was a lot of black polled Canadian bullocks; bought on the 1st of September last at £18.10 and sold in the middle of January following at £26, with first and second prize money, amounting to £1 per head. This lot was so much admired by the salesmen, the judges, and the public, that I had to give convincing proof that they were Canadian bred animals.

Our fat cattle markets, both for home and foreign beasts are at present in a very unsettled state, with a wide range as to prices, but in the store market there is a very good demand for the best class of one and two year old bullocks. Many of these are selling relatively higher by weight than the fat animals.

I am satisfied that both the home and Canadian farmers will have to make some decided advance in the breeding of their stocks.

I have the honour to be, sir,
Your obedient servant,

JAMES CHALMERS.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 12.

REPORT OF DOMINION BOTANIST ON THE RUSSIAN THISTLE.

OTTAWA, 31st October, 1894.

SIR,—I have the honour to state with regard to the correspondence concerning the so-called Russian thistle submitted to me for report, that this noxious weed has already been detected in Manitoba and Ontario during the past summer. Immediately on its appearance, under instruction from you, a short bulletin was prepared, giving an illustration and description of the weed, and what might be the most practical means of suppressing such a serious enemy.

This bulletin, which was issued in English and French, almost simultaneously, was sent to every one of our correspondents in Manitoba and the adjacent parts of the North-west Territories, and also to Canadian newspapers. Through the kindness of the Commissioner of Dominion Lands, and the Commissioner of the Mounted Police, further copies were also distributed to their agencies. In addition to these measures taken by your department, I learn that the Department of Agriculture of Manitoba has also taken active steps with a view to the eradication of this pest.

As to the advisability of taking further steps to prevent the entry of the Russian thistle, I would point out that all the instances of the occurrence of this plant in Manitoba and Ontario have been along railways and in railway yards. It is to be presumed, therefore, that in these cases the plant was introduced in the shape of seed, either shaken from grain cars or brought in with feed in connection with cattle cars and thrown out when the cars were cleaned.

In view of the above, if it were possible for the Immigration Department to have feed, straw and fodder brought by settlers into the country, inspected on the border, it might prevent the further introduction of this pest in some measure. I believe a likely source of its introduction is coarse, uncleaned grain, brought in as food for cattle. I think there would be little danger of the plant being imported in hay, as it is characteristically a waste land plant and not likely to grow on lands used for hay, although small plants might be found in wheat lands, and consequently there might be danger of finding ripe seeds in straw.

Although this plant has been detected at one or two places in Ontario, I do not think that there is the least danger of its increasing and becoming a serious enemy of the agriculturist of this province.

Its chief means of spreading is in the form of a tumble-weed, which separates from the ground late in the autumn when the seeds are ripe, and then is blown across the prairie, dropping its seeds wherever it goes.

I have every hope, owing to the active measures which have been taken by your department and the Manitoba Government, to make this weed known to Manitoba farmers, and to eradicate it wherever it has shown itself, that it will be prevented from maintaining a foothold in Canada.

I have the honour to be, sir,
Yours obediently,

JAMES FLETCHER,
Entomologist and Botanist.

The Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 13.

REPORT ON CANADIAN TRADE IN BRISTOL, 1894.

(J. W. DOWN, Bristol.)

BRISTOL, 31st October, 1894.

SIR,—I have the honour to report to you herewith on general trade matters between this district and Canada. Speaking generally, I believe the prospect of an improved season is good, and I shall be very much mistaken if the Canadian imports do not show a large increase. I have been busy from time to time among the merchants and dealers, giving them information about all classes of goods which Canada can send to this country, and I hope for good results to follow.

Cheese.

The cheese trade is brisk. I have no fear of this industry so long as proper care is given to it. The quality is excellent and of first rank amongst its competitors.

Butter.

Canadian butter does not seem to meet with any great favour for family use. Some very inferior parcels have arrived and the dealers who received them have had some sharp things to say to me about the trade. There is an immense trade done in butter in Bristol. Canada ought to have a large share of it, but my endeavours have not yet been very successful. Bristol merchants are very careful and do not readily overlook and forget any bad bargains they make with people across the Atlantic. I am sorry to say that several shipments of Canadian butter were very "wasty" and did a lot of injury to the trade. With the excellent creameries and rich pastures in Canada, Canadians should be in a splendid position to hold their own in this market. Success depends upon one word—"quality." The Australians are going in for this trade in real earnest, so Canadians must wake up and put a little more energy into their work if they are not to be left behind. Quotations for Australian and New Zealand range from 112s. to 115s. with other than choicest at 101s. to 109s. States and Canadian creameries are only quietly inquired for and offers at from 90s. to 100s. for best qualities. Irish butters have fallen from 120s. to 88s. Lard is selling at (buckets) pure 39s. 6d. to 41s.

Bacon.

Pork and bacon have sold well. I am pleased to say the Canadian article is gaining favour in this town, though the American consignments have turned out very satisfactorily and at present rule the market. I again advise that bacon should be shipped in a dry state. Bacon and hams properly cured, dried and smoked in Canada, would, I am sure, realize a good price in England, and always find ready sale. Care should be taken not to make it too salt.

Quotations.—Long clear, 35s. to 36s. Short clear, 34s. to 35s. Short backs, 36s. to 38s. Clear bellies (square), 40s. to 42s. New York bellies, 36s. to 38s. New York shoulders, 34s. to 36s. London cut green sides 63s. to 66s. Smoked, 69s. to 72s. English hams 93s. for large sizes and 100s. to 102s. for 6 lbs. to 10 lbs. As an initial experiment in preparing bacon in New Zealand for the English market, a small shipment which arrived in London not long ago has since been placed on the market for sale and has been taken without much hesitation, at about 50s. per cwt. The

attempt to introduce the article into England in this early stage of its production is said to be a success, and more consignments are to follow. Bacon curing establishments are being set up at Christ Church, Canterbury, together, with all the modern appliances for carrying on a thriving business. The quality of the last parcel received, which was of bacon cured from what are termed "dairy pigs," was considered very good and seems to have given entire satisfaction. I will watch this trade and report if I hear of anything worth communicating.

PROVISION TRADE.

Several of the large Bristol provision merchants agree that Canada can hold the provision trade of this market, comparatively speaking, in her own hands so far as butter, cheese and bacon are concerned, but to do so, particular care must be taken to ship only goods of the first quality. The merchants say that if Canadians go in for exporting from creameries, as I understand they intend to, and ship the choice creamery butters unmixed with poorer quality, then the market here is sure. I am informed the trouble so far with Canadian butter in tubs, has been the great irregularity of quality in nearly every parcel. Some lots run of a good quality for a dozen or so tubs, and then several lots of very poor butter are found, which spoils the value of the whole lot. Under the present system of indiscriminate mixing of butters by the Canadian brokers, I can easily understand that this must be so, as there are good and bad butter makers the world over. Now, by shipping creamery butter this would not happen, as with proper care, an article of all one quality, or nearly so, would be turned out. As regards bacon, ham, &c., all dealers agree with me that these goods should be shipped in as a dry state as practicable. The salting must not be overdone and the smoking should receive great attention as the merchants inform me much depends upon proper smoking. If I find any complaints as regards the smoking of further shipments, I will compare the Canadian article with the best home cured, and if necessary obtain and report the method employed here for smoking ham and bacon so that Canadians may imitate as closely as possible the peculiar flavour required for this market. Every side or ham should be branded "Canadian." This trade requires careful watching, both at this port and in Montreal.

I think Bristol receives more Canadian cheese, butter, bacon, hay and timber than any other English seaport, and no doubt many other articles will in time be shipped here from various ports in the Dominion. I should be sorry to see the butter trade go to other countries, and I am doing my utmost to push the Canadian provision trade, and hope for good results if Canadians will only stir, and take hold of my advice from time to time. In the butter trade, Canada can hold her own against the whole world and not be pushed out of the English markets.

Apples.

Australian and Italian apples arrived during the early summer in large quantities and secured very satisfactory prices. Canadians must at once give attention to packing, as I am convinced the old method is dead. It is no use sending over barrels of loose, bruised fruit. What is wanted for this market is small boxes of about 50 lbs. nett. The fruit should be packed in paper something after the manner of oranges. Sound fruit would now command about 2d. per lb. clear. The Australian and Italian goods arrive perfectly sound. The Canadian apple trade will sink into very bad repute unless steps are taken at once to secure honest packing of sound keeping fruit. I have had complaints from Bristol and Cardiff that it is far too risky to deal with Canadian apples as so many barrels are packed with good at top and bottom, but a worthless lot in the middle. The French and Italian firms send over to this market splendid fruit, but no better than first-class Canadian. They, however, are packed carefully and are quite reliable. Retailers now give a decided preference to continental parcels of apples, but would soon turn again to Canadian, if I could but honestly recommend them and keep the name of Canadian fruit before the public for a few seasons. It would be a pity to let this trade slip away. It is

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the opinion of the largest fruit merchants of Bristol that Canadian fall apples, such as the "Fameuse," "Snow" and "St. Lawrence," would take well if shipped in small packages neatly and tastefully packed. A large trade can be done if properly managed. I receive many letters from merchants in Canada asking for information respecting the prospects of butter, cheese, bacon, and other produce in England, and I am sure the Canadian exports to Great Britain will steadily increase for some years yet.

Hay.

We have had a heavy hay crop this year, but very bad weather to gather it. I would say fully one half was badly saved, and a very large quantity spoiled, whilst the greater part of the English hay crop of this year is only fit for rough feeding. Canadian hay retailed in the spring at £6 per ton (of 2,240 lbs.), and straw was worth £5 per ton. Taking everything into consideration, I think a fair market here for Canadian hay may be expected all through the coming winter. The one drawback to this trade is the number of middle men through whose hands this hay passes, as each person handling the same must get his commission, and the Canadian farmer in consequence suffers proportionately. A large amount of Canadian hay shipped from New York is sold here as American, and so Canada does not get the credit for the total amount of the article shipped. Careful inquiry made by me discloses the fact that almost all the hay received at Bristol from New York is of Canadian growth.

Barley.

I believe thousands of dollars are lost annually to the Dominion by carelessness in handling barley. The malting quality should be kept distinct from the grinding article. There are many shillings difference per quarter in their respective values in this market. Why cannot this article be graded the same as wheat?

LIVE STOCK.

It is unfortunate for Canada just now that the restrictions still prevail on Canadian cattle, thus preventing the shipping of Canadian stockers, for stockers are worth more money in our market than fat beef, live weight. Owing to the last bad seasons, farmers have greatly neglected to raise cattle, and thus England is very short of stock, many thousands short over 1892, of both sheep and cattle. By the way, I see the Australians are trying an experiment in shipping live beasts. Some twenty came over in the "Morie King" and landed in September at Deptford. These bullocks were said to cost in Sydney, Australia, from £4 4s. to £4 10s. each. After giving the number the ship could take at one time, &c., a writer in our press winds up by saying after bullocks have been grazed, say a few weeks in England, they would fetch £15 to £20 in the English market. I subsequently learned that these cattle were sold at a loss of from £3 to £5 per head, and the whole scheme seems to have been a complete failure. To the best of my knowledge all Australian cattle have to be slaughtered on landing, the same as Canadian. From what I hear, the loss on these cattle equals their cost in Australia, and the report circulated that Australian beef could be put on this market at 2d. per lb., and then a profit is incorrect. In my opinion we have nothing to fear on this score, and so long as good meat is sent here, I feel confident Canadian cattle will realize a figure which will show a profit to the senders.

I will carefully watch everything here in connection with Canadian interests, and hope that my services meet your approbation.

I have the honour to be, sir,

Your obedient servant,

J. W. DOWN,

Canadian Government Agent.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 14.

DIRECTIONS FOR THE USE OF THE TUBERCULIN TEST.

OFFICE OF THE CHIEF INSPECTOR OF STOCK,
MONTREAL, 7th December, 1894.

1. *Tuberculin*.—The lymph must not be exposed to sunlight. It must not be frozen; must be kept well corked to exclude air.

2. *Dose and Preparations for Use*.—The dose will vary with size and age, say from four to ten drops, thoroughly mixed in nine times the quantity of a one per cent solution of carbolic acid in distilled water.

Thus :—

4 drops Tuberculin + 36 drops of the 1 p. c. carbolic solution; or 6 drops Tuberculin + 54 drops of the 1 p. c. carbolic solution; or 8 drops Tuberculin + 72 drops of the 1 p. c. carbolic solution.

Instruments necessary—(Clinical).—One or more Fahrenheit thermometers, a hypodermic syringe with three strong hypodermic needles, and a fine trocar and canula, a fine bradawl, and a pair of clippers or curved scissors, and several glass droppers.

Disinfectants.—A five per cent solution of carbolic acid in which to dip the instruments and hands, a one per cent carbolic solution (as in direction 2), and a creolin solution to wash the skin with.

5. *When not to use Tuberculin*.—When the atmospheric temperature is very low or very high. When the animal is suffering from any inflammatory disease. When the temperature of the body is abnormally high from any cause. When a cow is bulling. When far advanced in pregnancy. When breathing impure air in a close ill-ventilated building, or suffering from a scarcity of water.

6. *Reliability as a test*.—While not infallible, it can be relied on in nearly every case where precautions are taken to use it only in proper cases. A rise of over $1\frac{1}{2}$ F. will indicate Tuberculosis. When the disease is far advanced often no reaction will follow its injection owing to a superabundance of it already in the system.

7. *Taking the temperature of the body before injection*.—The animal must be kept in a temperate atmosphere of uniform temperature for several hours before taking the temperature. The temperature is to be taken every three hours during the day preceding the injection, say at 8 a.m., 11 a.m., 2 p.m., 5 p.m., and 8 p.m. The thermometer should be washed in a disinfectant solution before using on a fresh animal. Fahrenheit's thermometer only is to be used as that most generally in use in English speaking countries.

8. *How to inject the lymph*.—The dilution being prepared as in direction 2, carefully preserved from sunlight and air. Let an assistant cut the hair close off any part of the loose skin behind the shoulder or on the side of the neck. Wash it clean with a creolin solution or 5 per cent carbolic solution. Place the instruments in the disinfectant 5 per cent solution, rinse the hands in it also. Let the assistant make a puncture through the skin with the bradawl, into which the operator will at once insert the needle of the hypodermic syringe (the object being to prevent bending or breaking off the needle owing to the thickness of the skin), and inject into the cellular tissue the solution of lymph. Six o'clock in the evening is the best time to inject the test.

9. *Taking the temperature after the injection*.—Commence at 6 in the morning and continue to take it every three hours; at 9 a.m., at noon, at 3 p.m., at 6 p.m., and at 9 p.m. Register the results in the charts very carefully, and when com-

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pleted mail at once to the department at Ottawa. Where conducted by North-west Mounted Police officers, to the commanding officer who will forward them to Ottawa.

10. Results will be determined from the charts by the Chief Inspector, who will report and recommend action to the Minister of Agriculture, from whom all orders for return or slaughter must issue.

D. McEACHRAN, F.R.C.V.S., D.V.S.,
Chief Inspector.

No. 15.

PRECIS OF ORDERS IN COUNCIL RELATING TO CATTLE QUARANTINE REGULATIONS PASSED IN 1893, AND 1894, SUPPLEMENTARY TO APPENDIX No. 47 IN LAST YEAR'S REPORT.

13th December, 1893.—That the Order in Council of 28th October, 1893, in relation to cattle quarantines west of the eastern frontiers of Manitoba, be and is amended by excepting the provinces of Manitoba and British Columbia from its definitions.

16th March, 1894.—Amending Order in Council of 28th October, 1893, so as to allow the entry of settlers' cattle or other cattle at points west of the province of Manitoba after 20th instead of 31st of March in each year.

9th May, 1894.—Amending Order in Council of 17th September, 1892, establishing permanent quarantine reservations along the boundary line between Canada and the United States, from the western boundary of Manitoba to the Rocky Mountains, as set forth herewith:—

“Representations have been made by the officers of the Government charged with the enforcement of the quarantine regulations in the North-west Territories, that the reservation in question is not suitable for the purposes for which it is intended:—First, because of its remoteness from the eastern portion of the district which it serves, it being erected on its extreme western edge, and involving much loss of time and expense on the part of settlers bringing in cattle by way of the Belknap trail through the east end; second, on account of its difficulty of access; third, the scarcity of water within the reservation, there being, with the exception of the Milk River, which cannot, on account of its high and precipitous banks, be considered as a watering place, only one pond which does not go dry in summer; fourth, the scarcity of water throughout the tract of country extending from Ross Creek to Willow Creek and the Cypress Hills, a feature which might prevent the cattle from being driven to their destination after a detention of 90 days in the present reservation; and fifth, the inconvenience to the Mounted Police Force, who are more particularly charged with the enforcement of the quarantine regulations in the North-west Territories, consequent upon the present location of the reserve in question, to keep an effective watch on this part of the country.

“Representations have also been made that the triangular piece of land lying between the main stream of Willow Creek and its north fork does not present any of the objectionable features met with in connection with the reservation as it now stands, and they are of opinion that it would be in the public interest to cancel the present reservation and substitute therefor the tract which can be more particularly described as follows:—All that triangular tract of country bounded on the west by the main stream of Willow Creek, on the east by the north fork of the same creek, and on the north by a small creek or *coulée* emptying into the said north fork.”

The Order in Council of the 17th September, 1892, therein quoted, is amended accordingly.

24th October, 1894.—Amending Order in Council of 28th October, 1893, (sec. 1) in so far as to permit importers of cattle to enter their animals into the quarantines at Emerson and North Portal, notification being given to owners that all such animals entering the quarantines between the dates mentioned shall be entirely at their own risk and cost, and that the regulations as to the quarantining of cattle must in all other respects be observed.

Department of Agriculture.

No. 16.

REMARKS ON HONEY PRODUCTION.

(R. F. HOLTERMAN.)

BRANTFORD, CANADA, January 27th 1894.

SIR,—There are several reasons why this is the time to take hold with might and main of the bee-keeping industry, and develop it. You know "There is a tide in the affairs of men, &c." This tide has come to bee-keeping. Ontario has won great honours at Chicago. This will now help us to secure a market in the world. Great Britain alone takes ten million pounds of honey a year, Germany takes large quantities, I believe. Again the proposed reduction to less than $\frac{3}{4}$ of a cent per cwt. on honey into the United States, which is not at all likely to meet with opposition, will give us a market for *first-class* honey in the United States. Our honey is superior, and we have the best of reputation there for purity of product. Mr. Allan Pringle, who had charge of the Ontario honey exhibits at Chicago stated at the annual meeting of the Ontario Bee-keepers Association that he could, even with present duty, have sold 100 tons of honey in Chicago in a short time and at present prices ruling in Canada; how much better can we do with the proposed reduction in duty. The efforts of a first-class apiary at Ottawa should be this—To carry on experiments which will lead to the production of a better quality of honey throughout the country and in better shape for market,—experiments which will lead to the production of honey at a less cost and moreover to the adoption of improved methods of bee-keeping such as the movable frame hive in preference to the old box hive which so many use at present in eastern Ontario and Quebec province.

People will listen to official results such as obtained at Ottawa more quickly than they will to the private teachings of an individual, in short the eyes of the country will look upon such a source as official. Well then, the aim of such an undertaking should be this:—

To very much increase the production of honey in Canada, including Manitoba, North-west, British Columbia, &c., ten times (yes, more) the number of colonies could be kept, and in that way we would have a foreign output every year, the resources of our country, and its wealth-producing powers would be increased just to that extent. For the production of honey displaces no other crop upon the farm. More, the bees assist the fruit grower in the fertilization of flowers; for this alone they are valuable.

There is one further peculiarity; we would have an output for export every year; for we are under such a variety of conditions as to soil, flora, altitude and climate that when one district fails to give a surplus, another affords it. Next, we should aim at drawing attention to the value of honey as a food, and increase the demand both at home and abroad.

A bee department so conducted would be of immense good to the country. Bee-keepers would owe the Minister of Agriculture a debt of gratitude in many ways, and, properly conducted, its inception will leave a distinct mark upon the pages of Canadian agricultural history, a mark by means of which the term of office of the present Minister of Agriculture would be remembered. To equip the apiary would cost about \$500 or \$600 besides the house. There would be a very good revenue from the apiary in the way of honey, queens and bees. I am inclined to think the apiary would yield in the way of sales 50 per cent on stock in the apiary which would help to offset salary of apiarist which is not considered in the above estimate.

Now, if this plan cannot be carried out, then I would offer to conduct an apiary for experimental purposes as R. L. Taylor is doing at Lapeer, Michigan. My plan would be to turn my apiary partly into an experimental apiary, conduct with my bees experiments of value to bee-keepers, and then report to you; this would give you results as to experiments without the cost of fitting out an apiary or running any risk in that line.

Trusting you will pardon this long letter upon a subject which I feel strongly upon,

I have the honour to be, sir,

Your obedient servant,

R. F. HOLTERRMANN,

Editor Canadian Bee Journal.

To the Honourable,
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 17.

REPORT ON FODDER PLANT, LATHYRUS SYLVESTRIS.

(MR. W. SAUNDERS.)

OTTAWA, 26th January, 1894.

SIR,—In reply to the inquiry contained in your letter of the 23rd instant respecting the fodder plant, known as the "Wood Vetchling Pea," or "Lathyrus Sylvestris," I have to report that it has been the subject of experiment at the central farm for four years past and at the branch farms more or less for the past three years. By referring to the reports of the experimental farms for 1891 the Superintendent at Agassiz says:—

"One hundred plants of this new fodder plant were received and planted in the fall of 1890. Only about 60 plants lived through the winter, owing to the heaving of the ground, but these made a strong, vigorous growth and fruited this year, and the plants being now thoroughly rooted are not likely to suffer from frost this winter. Owing to the scarcity of the plant and seed, it was thought best to leave ours to mature the seed, and we have now about 20 ounces of seed."

"The straw was still green and succulent when the seed was harvested, and we cut it and offered some to our cattle and horses, but they would not eat it, and we were unable to cure it owing to continued rainy weather. Next year it is proposed to try it in a silo. If it makes good ensilage it will be valuable on account of the large quantity which can be taken off the land. The vines this year average from 4 to 6½ feet in length."

And in the same report for 1892, he says:—

"This plant has made a vigorous growth again this year, and as there has been considerable inquiry for seed, we let it ripen, so that there might be a quantity of seed for distribution.

"The seed raised last year was distributed in small quantities throughout the dry grazing lands of the interior, and as far east as Calgary in the North-west Territories.

"A small quantity of the seed was sown on the farm in April, it came up, but has only made a growth of about 10 inches.

"Reports have been received from two parties in the Territories, to whom were given a few seeds, Mr. W. Pearce and Mr. Oscar Moorehouse, both of Calgary, and in each case a growth of from 6 to 10 inches was made."

It has not succeeded well either at Brandon or Indian Head, and no report has been given on it from either of those stations. I do not think the test sufficiently thorough to warrant me in making any discouraging report from the trials they have made there. The difficulty we have found in our experience here is that of inducing the animals to eat the plant. They will eat it when reduced by hunger or absence of other food, but do not seem to like it. The parties who are interested in supplying the seed, state that the taste is an acquired one, and that after animals have fed on it for a time they get to like it; but we have not grown enough of it to enable us to carry on these experiments for any lengthened period. The plant grows well at the central farm, produces a large amount of herbage, and seems to be perfectly hardy. The seed, however, is very expensive and difficult to obtain in any quantity. The plants here do not bear much seed, but in British Columbia they have seeded better. In a recent issue of the leading agricultural paper of France *Journal d'Agriculture* when asked about the value of *Lathyrus Sylvestris*, the editor recommends farmers

not to trust to what agents say about it. I presume from this that it is not held to be of very much value there. The seed has been distributed to farmers in quite a number of points in British Columbia, and I am hopeful that it may be useful in some of the drier sections of the country.

I have the honour to be, sir,
Your obedient servant,

WM. SAUNDERS,
Director Experimental Farm.

To the Honourable
The Minister of Agriculture,
Ottawa.

Department of Agriculture.

No. 18.

CANADIAN GRAPES IN ENGLAND.

OTTAWA, December, 1894.

The following extracts from the British press point to a branch of Canadian fruit trade, which bids fair to open a new market in Great Britain for the products of our vineyards, at remunerative prices to the grower:—

(From the "Gardening World," November 24th, 1894.)

"We have recently had our attention called to a very interesting consignment of grapes received in Liverpool from Canada. The consignment consisted of two baskets sent by Mr. Lowe, deputy minister of Agriculture at Ottawa, to Mr. Ennis, manager of the Allan Steamship Co., Liverpool, and were dispatched by steamer from Montreal on October 13th. They reached Liverpool on the 23rd of the same month, and when opened were found to be in perfect condition, well coloured, sweet, and for open air grown fruit both tempting in flavour and attractive in appearance: at least such was the condition of the sample we saw in London several days after its arrival in Liverpool, and we are assured that all were alike. The consignor, it seems, has experimented before in sending grapes from Canada to this country, but made the mistake of packing the bunches in cork dust, which destroyed the flavour. Those we saw had simply been put carefully into ordinary fruit baskets as the bunches were cut off the vines, and protected by having a piece of cloth sown over the top of the basket, and in this way they certainly travelled admirably. There appeared to be some half dozen sorts in the basket, but the major portion consisted of the variety known as the "Salem," a brownish-looking grape with a thickish skin, which seem to us to be the sort most worthy of attention as a shipping grape."

"Writing to Mr. Ennis on October 12th, Mr. Lowe remarked that the grapes in Canada at that time were good and the flavour as fine he thought, as could be obtained. Experts, who have seen grapes in all four quarters of the globe, state that Canadian grown fruit in the open is amongst the finest they have seen; and, indeed there can be no doubt, the climatic conditions of Canada are eminently favourable to the development of high class quality. Grape culture in Canada is, we understand, already a considerable industry, and has made a fairly rapid growth. The government statistician of the Canadian Department of Agriculture has shown that while the imports to Canada of grapes in 1881 amounted to 3,697,555 lbs. and the weight of home grown fruit was 424,848 lbs., in 1891 the imports had fallen to 1,081,792 lbs., and the home growth had increased to 12,252,331 lbs., over twelve and a quarter million pounds of grapes in one year; and it is probable that the yearly increase since has been in a proportionate ratio. If, as it is believed, such grapes as we saw, can be grown in Canada as a paying farm crop at a penny per pound to the grower, and they can be shipped here in such condition as we have seen them, then, undoubtedly, a considerable trade in them is certain to be developed in the near future, and our growers of cheap grapes would do well to look to the prospect ahead."

From "Land and Water," November 24th, 1894.

"It is more than probable that in the near future, grapes will be added to the list of imports our Canadian friends already supply us so liberally with. In passing through Liverpool a couple of weeks ago, we had occasion to call at the offices of the Allan Steamship Company, and were there shown by Mr. Ennis, the manager of the line, some samples he had just received from Mr. Lowe, the deputy minister of Agriculture at Ottawa, which in every respect were excellent examples of successful cultivation. We must not be understood as saying they were equal to English hot-house grapes. Ottawa is, perhaps the northern limit of the growth of the grape with advantage. It possesses the summer suns of the best grape growing parts of France, with favourable conditions of soil, and the cold winters are not at all a serious drawback. It is therefore evident, as has been already proved in this instance, that if they are sent over in baskets without deterioration, a trade will spring up in England for this fruit during the autumn season. Although it is at present a thing of insignificance, it may, and no doubt will, become of very considerable importance in the near future."

Department of Agriculture,
Ottawa.

Department of Agriculture.

No. 19.

SPECIMENS OF CANADIAN WOODS SUPPLIED TO MR. PHIPPS,
LECTURER FOR THE CITY AND GUILDS OF LONDON.

ONTARIO.

1. *Tilia Americana*, L..... (Basswood.)
2. *Acer rubrum*, L..... (Soft maple.)
3. *Acer barbatum*, L..... (Sugar maple.)
4. *Fraxinus sambucifolia*, Lam..... (Black ash.)
5. *Ulmus Americana*, L..... (Common elm.)
6. *Betula lenta*, L..... (Black, or cherry birch.)
7. *Fagus ferruginea*, Ait..... (Beech.)
8. *Quercus alba*, L..... (White oak.)
9. *Larix Americana*, Michx..... (Tamarack.)
10. *Pinus strobus*, L..... (White Pine.)
11. *Tsuga Canadensis*, Carr..... (Hemlock.)

VANCOUVER ISLAND.

12. *Thuja gigantea*, Nutt..... (Western cedar.)
13. *Pseudotsuga Douglasii*, Carr .. . (Douglas fir.)

Department of Agriculture,
Ottawa, 31st October, 1894.

No. 20.

REPORT ON CANADIAN FLAX INDUSTRIES.

(JOHN LOWE, DEPUTY MINISTER OF AGRICULTURE.)

OTTAWA, November, 1894.

SIR,—I have the honour to state that during a visit paid by me to western Ontario this autumn, I availed myself of the opportunity to visit the flax mills at Baden in the county of Waterloo, so as to gain by observation and inquiry facts pertaining to the flax industries. Mr. Erbach, the manager of these mills, personally accompanied me, at the suggestion of Mr. Livingston, M.P., and afforded me the information I embody in this report.

On entering the mills, the first thing shown me was the flax seed cake for feeding, of which Mr. Erbach said the mill exported 100 tons per week to the United Kingdom. He said very little of this flax seed cake was consumed in Canada, although they send an occasional carload to Quebec at the price of \$25 per ton, or about $1\frac{1}{4}$ cents per pound for feeding. I asked Mr. Erbach how many pounds of cake a bushel of flax seed would give. He told me about 40. The remainder of the bushel (50 lbs. statute weight) would, therefore, be pure oil. The waste I think would be very trifling.

Proceeding to see the process, we found the flax seed was ground in an upper story and shot down by a hopper into a heating receptacle, the heat being applied by steam. The ground seed by a simple and ingenious process is taken from this heating receptacle and fitted in square boxes with strong lining of cloth open at the sides, the boxes or matrices being of the exact size of the flax seed cake. The ground seed in this form is put into a hydraulic press to which Mr. Erbach said a pressure of 300 tons per square inch was applied. The oil thus expressed from the ground and warmed seed flows out freely and by gravitation descends into a reservoir from which it is pumped into barrels, this being the whole of the simple and effective process. The cakes taken out of the press are put in bags tied up at the ends and are thus ready for export. Handling the cakes as they came from the press they were found to be quite dry. I asked Mr. Erbach how long in the season they continued to export 100 tons of flax cake a week. He said *all the year* if they could get seed. Asked how they procured seed he said that in that vicinity they generally made arrangements with the farmers to hire or rent from them prepared land, that is land prepared for seeding by ploughing and harrowing early in the season, in the month of May. At this point the Mill Co. takes possession of the land, sows it and reaps the flax. Young Mr. Livingston informed me that the price paid—\$11 per acre—was about an equal division of costs as between preparing the land and taking off the crop. I did not ask him what allowance was made for ground value.

Mr. Erbach told me that they had this year obtained 150,000 bushels of flax seed from the Mennonites of Manitoba, they having put this in as a catch crop after they could no longer sow wheat in the month of May. He said they also sowed flax on the new breakings by the process of simple harrowing and got fairly good crops. Mr. Erbach said he had this year given the Pembina Mennonite settlers \$150,000, for their flax seed.

Department of Agriculture.

Mr. Erbach further informed me that the flax in Manitoba was grown wholly for seed and that owing to the richness of the soil they got almost double the quantity of seed obtained in Ontario; but he said the fibre in Manitoba was of no use, that he could take a bunch of it in his hand and break it off with his own strength. He said the same thing was true in many of the western United States where many hundreds of thousands of bushels of flax seed were grown for the seed alone, the fibre being found to be useless.

Mr. Livingston, M.P., told me that in Manitoba not more than one half bushel of flax seed was sown to the acre, that it was necessary to sow it thin in order to cause the plant to bush out so as to obtain the largest possible amount of seed. The flax seed also being small in size a half bushel to the acre would give a larger number of grains to the acre than a bushel and a half of wheat, or possibly more than two bushels of wheat or even more than that.

Young Mr. Livingston informed me that the soil for growing flax had to be specially prepared, that it should not be too rich where the object was to obtain fibre; that it should never be grown on the application of fresh manure.

The value of the fibre in Ontario, I gathered from information afforded me at the mills, added to the seed, would make the crop quite as valuable or more so than the crop of Manitoba for seed alone, which gives 20 or 22 bushels to the acre, or very nearly double that of Ontario.

Mr. Erbach said that some of the Mennonites cut the flax with their binders and bound it in sheaves in the same way as the wheat; but he thought that unnecessary, and that the flax cut by a reaper and handled in the bulk would be better. Of course this latter process would be cheaper.

He also told me that the Mennonites from whom he had purchased the \$150,000 worth of flax seed in the fall, grew quite as much wheat as their neighbours, for the reason as above stated that the seed was only put in after wheat sowing was done, or on new breakings on which wheat could not be sown.

Mr. Livingston and Mr. Erbach both expressed to me the opinion, based on large experience, that flax could not be considered an exhaustive crop as respects the soil as popularly considered, but Mr. Livingston said that he considered rotation or fallowing necessary to keep the land clean, the land requiring to be perfectly clean for flax. Keeping the land clean was the test insisted on rather than richness of soil, which was not favourable to the growth of fibre although conducive to large yields of seed. These are conditions which would seem to make the crop specially valuable on the rich prairies of Manitoba and the North-west.

Mr. Erbach told me that owing to the drought of last summer in Manitoba the flax sown in May by the Mennonites did not come up until the rain fell in June, but after that its growth was very rapid and the seed ripened. This rapidity of growth should make it a valuable crop for the short seasons of the Canadian North-west, and if the seed grown there should have the properties of the Baltic seed grown in similar conditions as respects land and climate, it may have a very considerable value for export to meet the growing demand for the manufacture of linoleum.

Mr. Erbach added that the company at Baden had supplied Baltic seed to the Manitoba Mennonites.

I have the honour to be sir,

Your obedient servant,

JOHN LOWE,

Deputy Minister of Agriculture.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 21.

CORRESPONDENCE RESPECTING CANADIAN HERD AND STUD BOOKS
IN UNITED STATES.

The following correspondence respecting the omission of the Canadian Herd and Stud Book in the United States Treasury Department Orders, which unjustly discriminates against Canadian importation of pedigree stock into the latter country, shows the action taken by the Canadian Government with a view to rectifying such omission.

REPORT TO COUNCIL.

The undersigned has the honour to report, that:—

He has been moved by representations made by the Select Standing Committee on Agriculture and Colonization of the House of Commons, during the last session, and also by representations made to him by a deputation from the several Live Stock Associations of the Dominion, to call the attention of Your Excellency to the United States Treasury Orders relative to the importation of pedigree stock into the United States.

The Orders issued in January and May, 1892, and in March, 1893, contain lists of Herd Books recognized and published in the United Kingdom, the colony of New Zealand, the Turkish Empire, France, Belgium, Germany, Algeria, and other places, while the Canadian Herd and Stud Books are omitted.

The omission of the Canadian Herd and Stud Books which, previously, had always been officially recognized by the United States Customs' authorities, has caused surprise and disappointment to breeders of stock in Canada; the result of such action being that no pure bred stock from Canada could be admitted into that country, from the date of such omission, without having been previously registered in records kept in the United States.

It was intimated to the undersigned by the deputation from the several Live Stock Associations of Canada, above referred to, that the Secretary of the Treasury of the United States, the Honourable Charles Foster, on being communicated with on the subject, admitted that the Canadian Books had been left out, for the reason, not that the standards of the Canadian Stud and Herd Books were not up to the desired mark, but that such was the wish of the different Live Stock Associations of the United States.

It has been represented to the undersigned that the standard of the Dominion Shorthorn Herd Book is even higher than that of the United States.

The Shorthorn Breeders Association of the United States recognizes the Dominion Herd Book and permits transfers from it for registration in the United States.

The same may be stated as regards the Dominion Clydesdale Stud Book.

The omission in the orders of the United States Treasury Department mentioned, in view of the facts stated, is found to be unjustly discriminating in its relations to Canada.

The delegation of gentlemen interested in the different Live Stock Associations of the Dominion urge that representations be made by Your Excellency through the British Minister at Washington to obtain, if possible, an amendment of the Orders of the United States Treasury Department, in such way as to place the Canadian Herd and Stud Books in the same position as those of other countries, and the British colony of New Zealand, as respects recognition of standards of excellence, as formerly.

The undersigned, therefore, recommends that Her Majesty's Minister at Washington be requested to make representations in the sense of this report, if approved, to the proper officer.

The whole respectfully submitted.

A. R. ANGERS,
Minister of Agriculture.

Department of Agriculture,
Ottawa, 10th August, 1894.

Department of Agriculture.

Mr. Goschen to the Earl of Aberdeen.

WASHINGTON, 25th October, 1894.

MY LORD,—On the receipt of Your Excellency's despatch No. 43 of the 6th ultimo, respecting the omission of Canadian Herd and Stud Books from lists of recognized Herd and Stud Books contained in Orders issued by the United States Treasury relative to the importation of pedigree stock, I immediately wrote to the Secretary of the Treasury on the subject, and while asking for an explanation of the omission, expressed the hope that the books in question might obtain his official recognition which has heretofore been granted to them in the United States.

I have now the honour to transmit herewith, a copy of a letter addressed to me by the Acting Secretary of the Treasury in reply, which contains a statement made by the Secretary of Agriculture in explanation of the omission in question.

Your Excellency will perceive from this statement that there is apparently no discrimination against Canada in the rules laid down in the Department of Agriculture with regard to the registration of stock, and that if Canada has any pure bred stock which originates in the Dominion, and the record books are brought to the attention of that department, they would be considered and accepted or rejected in the same principles as those applied to the record books of any other country.

I should be much obliged if Your Excellency would inform me whether the explanation given by the Agricultural Department is satisfactory to your Government or whether they have any further considerations to urge such as would be likely to induce the United States Government to modify their rules with regard to this subject.

I have, &c.,

W. E. GOSCHEN.

A copy of the above has been forwarded to the Earl of Kimberley.

Acting Secretary of the U. S. Treasury to Mr. Goschen.

TREASURY DEPARTMENT.

WASHINGTON, 16th October, 1894.

SIR,—Referring to your letter of the 14th ultimo, I have to state that the department has received from the Secretary of Agriculture the following explanation of the omission:

"It was decided after full consideration, that no registers of the American Continent should be recognized except those of Associations located in the United States, unless such registers were for breeds of stock originating in the country where the record was established. There are consequently no South American, Central American, Mexican or Canadian registers on the list. There is no special discrimination against Canada. If Canada has any breed of stock which originated in that country and the record books are brought to the attention of this department, they should be considered and accepted or rejected on the same principles which are applied to the record books of any other country. If their breeds are all of European or United States origin, the breeding of the animals should be decided by European and United States record books.

"The registration in a United States Association causes no hardship to the Canadian breeder of pure bred stock. As is admitted in the report of the Privy Council, the principal Association of Canada and the United States recognize each others' registers and permit transfers of pedigree under proper regulations and supervision. There is no delay or difficulty attending the matter if the breeding is all right. I have heard of no case where registry has been refused to Canadian stock which was properly vouched for, nor do I believe that such could occur. The Associations have their fixed and printed requirements for registration and when those requirements are complied with the registration could not be refused."

S. WIKE,

Acting Secretary.

Mr. W. E. GOSCHEN,
&c., &c., &c.

58 Victoria.

Sessional Papers (No. 8A.)

A. 1895

APPENDIX TO THE REPORT OF THE MINISTER OF AGRICULTURE FOR 1894

REPORT

ON THE

FOREST WEALTH OF CANADA

BY

THE STATISTICIAN OF THE DEPARTMENT OF AGRICULTURE

PRINTED BY ORDER OF PARLIAMENT



OTTAWA

PRINTED BY S. E. DAWSON, PRINTER TO THE QUEEN'S MOST
EXCELLENT MAJESTY

1895

[No. 8a—1895.] *Price 20 cents.*

Forest wealth of Canada.

STATISTICAL OFFICE,

DEPARTMENT OF AGRICULTURE,

OTTAWA, December, 1894.

SIR,—At your request I have prepared a report on the "Forest Wealth of Canada."

It includes :

- 1st. The report proper.
- 2nd. A number of appendices as per annexed list.
- 3rd. Statistical tables as per annexed list.

I have to state that the returns are not as complete as I would like them to be for the purpose of a complete investigation.

I have done the best I could with the limited resources at command.

Some statements which would have been of service I have been unable to obtain in time for use. Later on they may come in. If so they can form a supplementary report.

I have to record my indebtedness to Mr. E. J. Toker, to whom I intrusted the work of collecting the statistics I required.

I have the honour to be, sir,

Your obedient servant,

GEORGE JOHNSON,

Statistician.

Hon. A. R. ANGERS,
Minister of Agriculture,
Ottawa.

FOREST WEALTH OF CANADA.

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Forest wealth of Canada.

FOREST WEALTH OF CANADA.

In accordance with directions I have endeavoured to gather statistics of the forest wealth of Canada.

The influence of forests on climate, on agricultural operations, on river fisheries, on water communications, on the health of the people and on the general trade and industries of a country is so far reaching that an examination of the value of our forests branches out in many directions, all of immense importance.*

The important direct effects of forests are due to the products which they yield, the capital which they represent and the work which they provide.

The mechanical effect of forests makes itself felt chiefly in regard to the distribution of the rain water, the preservation of the soil on sloping ground, the binding of moving sand, and the prevention of avalanches. (*See Appendix P, for Humboldt's views.*)

In Canada, in the various industries depending for their existence upon the supply of wood there is an invested capital not far from 100 million dollars and an annual wage list of over thirty (30) million dollars with an output valued at close upon 110 million dollars. (*See Statistics, Table 1 e.*)

In addition, there are the railways which are dependent on the wood supply for railway ties† and dimension timber, and in whose freights the lumber carried figures as nearly one-fifth of the total freight carried; the canals, of whose freights the products of the forest constitute two-fifths of the total freight carried (*See Statistics, Table 2*); the mines which require wood for shoring purposes; the ships which, themselves chiefly made of wood, find in our exports‡ of the products of the forest the materials for the full cargo without which freight rates on goods carried must be higher—nearly one-quarter of the exports of home production being products of the forest; the leather industry which depends upon nature's supply of tannin secreted in the bark of trees; the lucifer match industries; those varied industries which depend in part upon wood, such as agricultural implements, edged tools, &c.; and the practically new industry of pulp making, which within ten years has sprung up into an industry with nearly three million dollars of invested capital and over one million dollars of annual output.

*The New York State Forest Commission in January, 1894, report says: "On the preservation of our forests depend the water supply of our rivers and canals; the motive power of our great manufacturing interests; the priceless benefits offered by our forest sanitariums; the many delightful places of refuge from the summer heat of the cities, and the existence of our fish and game. But above all on their preservation depends that great factor in our political economy, the future timber supply." (*See Appendix A.*)

†Including sidings and double tracks we have about 18,590 miles of railway in Canada. At 3,000 ties to the mile the ties required number 55,770,000. Assuming the life of a tie to be seven (7) years, the number needed every year is about eight (8) million for renewals, and, allowing 300 miles for new roads every year, a million more for this purpose or about nine (9) million ties a year. Supposing that 50 cubic feet of ties can be obtained from an acre of forest, it will be seen that 3,340,000 acres will be required to supply the consumption of young and thrifty trees needed for the 18,590 miles, and 530,000 acres for each year's demand.

‡Canada is the fourth largest exporter of products of the forest, being only exceeded by Sweden and Norway with a net export of \$37,135,000; by Austria with a net export of \$31,000,000 and by Russia with \$33,300,000. On a per head basis, Canada stands second, her net export in 1891 having been \$24,574,869, equal to \$5.08 per head against Sweden and Norway's \$5.50, Austria's 75 cents and Russia's 34 cents per head.

The value of forest products consumed per capita may be estimated approximately. The value of our forest products, calculated from the census returns of 1891, was \$80,071,415. For the fiscal year 1890-91 our imports of wood articles amounted to \$3,132,516, while for the same period our exports were \$27,207,547, leaving for consumption in Canada \$55,996,384 or a value of \$15.59 per head. With respect to the quantity used the census returns show an aggregate of 2,045,073,072 cubic feet as the total cut of the year. About 30 per cent of this is exported, leaving 1,431,551,150 cubic feet for the annual home consumption. This is equal to 296.2 cubic feet per head of the population. B. E. Fernow,* chief of the Forestry Division of the United States Department of Agriculture, estimates that the per capita consumption of the United States is about 350 cubic feet annually.

Whether we consider the capital invested, the labour employed, or the varied uses to which wood is put in enhancement of our comfort and convenience; or whether we consider the permanent interests of the timber trade, of the settlers in our new country, of the public revenue and of the country generally, we are forced to regard the forest as a precious heirloom to be deeply revered, properly used and, through careful maintenance, to be handed down to posterity improved and enriched.

Looked at from the most enlarged point of view the forests of Canada are her greatest heritage, because "the nations or states in which food, fuel, metal and timber may be produced at the highest relative rates of wages and at the lowest money-cost per unit of product will thereby be enabled to apply labour-saving machines to other branches of productive industry in the most effective manner."† The nation that would succeed in effecting this combination can do so only by maintaining its forests in their best possible condition, since of the four factors described the timber is the most easily exhausted. The nation which succeeds in this four-fold combination, must be, in the long run, at the head of all nations.

DIFFICULTIES IN THE WAY.

At the very outset of the inquiry great difficulties were encountered in the effort to secure trustworthy data. These difficulties were increased from the fact of the divided control and ownership.

The ownership of Canadian forests is for the most part vested in the Provincial Governments, including the provinces of Ontario, Quebec, New Brunswick, and British Columbia, which grant licenses to the lumbermen.

In the province of Manitoba and in the Territories and in the Railway Belt of British Columbia (40 miles wide by 500 miles long) the Dominion Government, filling the place of the Provincial Governments, owns the Crown lands and their forests.

In Nova Scotia there is no system of timber licenses, the trees being sold with the land and not much timbered Crown lands remaining. This is also the case with Prince Edward Island.

In the settled portions of the provinces the woodlands are in the hands of private owners, but contain comparatively little that can be classed as forest, though the census returns indicate that about one-third of the occupied land is in woodland and pasture, possibly leaving one-fourth for woodland.

*Circular No. 10, U.S. Dept. of Agric. Div. of Forestry.

†Atkinson in "Forum." February, 1894.

Forest wealth of Canada.

In the United States, notwithstanding the length of time during which attention has been directed to forestry, an exact census of forest area in existence has never been made. "The area covered with wood growth is less than 500,000,000 acres. If all the land area, not known to be treeless or in farms, were under forest, the acreage would not exceed 850,000,000, but the lower figure is probably more nearly correct." *

The same statement may be made respecting Canada. From some persons there are affirmations that there is not more than ten years' supply.† From others there are declarations that the supply in our forests is sufficient to last 100 years, possibly 200 years.

The Assistant Commissioner of Crown lands of Ontario points out that "while the department could give the area of the unsold lands of the Crown, all of which are covered, to a greater or less extent, with various kinds of timber, as this is a wooded province, it is quite an impossibility to estimate the quantities of timber upon the ninety million acres representing that unsold area." ‡

DATA NEEDED.

The data needed for a thorough examination of this subject are :

1st. A statement of the wooded area of the Dominion, divided into, (a) That in the occupancy of private individuals, and (b) That in the control of the several governments.

2nd. Reports on the condition of the forest growth of sold and unsold areas by experts such as the surveyors in the employ of the Provincial and Dominion Governments, forest rangers and other persons employed in that work by the various large lumber firms. §

In the absence of data of the kind mentioned, I have endeavoured to shape inquiries so as to answer in the best possible way four questions :

1. What have we and what is it like as to size and varieties?
2. How fast is it going?
3. What means are used to replenish?
4. How long will the supply last?

This means, simply put, an examination into our forest area ; into the destructive, the reproductive and the protective forces at work, and into the needs of the present time for the purpose of weakening the destructive and strengthening the protective and regenerating forces.

THE FOREST AREA OF CANADA.

There was originally in Eastern Canada one unbroken forest from Nova Scotia to the Lake of the Woods, a distance of 2,000 miles and covering an area of 315 million acres. Through this forest there ran the rivers Miramichi, the St. John and the St. Lawrence with its string of lakes, great and small, and with its great tributaries, the Saguenay, the St. Maurice, the Ottawa and others.

* B. E. Fernow, Circular No. 10, Division of Forestry, United States Department of Agriculture.

† James Little in Forestry Convention, 1882, quoted by H. B. Small, "Canadian Forests."

‡ Letter to the Statistician.

§ An attempt has been made to cull from the reports of surveyors and others such casual statements as have been made on this subject by them. (See Appendix "B.")

Along these rivers population found its way to the different localities, impelled by various motives, some to settle on the land, some to explore and hunt, some to cut timber.

In 1642 Montreal was founded and a practical beginning made in settling the country. But the 2,000 settlers then in the region could do little to denude the land of its forest except by means of fire, the most potent instrument of destruction. For 250 years the axe and the torch have been making inroads upon this vast forest.

The census of 1891 shows that we have cut out from this forest area, say, 30 million acres of land for agricultural purposes. Possibly, in 20 million other acres work has been done to reduce this particular area to a low percentage of forest trees.

The remainder is under forest. But a large portion of this remainder has been "deviled" by the lumberman seeking for merchantable timber. The careless torch has lighted fires like the Miramichi fire which swept with fierce energy over an area of more than 3 million acres, leaving blackened giant pines to be a reminder for more than half a century of the immense destruction there and then caused. Thus, there has been a thinning out of the forest trees all through the 260 million acres not used for farm and pasture. Vast areas have suffered from fires so severely that in many places the soil has been burned off to the very rock, and a century's disintegrating forces will have to act upon the rock before there can be soil enough created for practical uses. Lakes and pools and streams innumerable take away a good sized slice from the 300 million acres.

But allowing that one-half of the area is comparatively useless as forest area because of water and rock, we still have 150 million acres of forest area (*see* Table 4a). Under this assumption we have 45 per cent of the Eastern provinces still under forest.

Reference to "Statistics" Table 3, will show that Germany has 26 per cent of her area under forest and finds that forest area (somewhat over 34 million acres in extent) nearly sufficient to supply the wants of 50 million people, her net import of wood and forest products being but 43 cents per head, including woods and manufactures of wood not natural to the country; that Austria-Hungary with over 41 million people to supply and a forest area of 30 per cent of the whole area to provide the supply, is able to meet home demands and still to have a net export of over 31 million dollars; that Russia with an area in Europe of 1,341,122,560 acres, of which 37 per cent is forest area, can supply herself and have 33 million dollars of products of the forest for export.

Austria-Hungary with one acre of forest area per head of its population, manages to supply its own wants and to have a net export of 75 cents per head of its population.

Norway, with under 10 acres per head in forest area, supplies her own wants and has a net export of \$4.10 per head.

Sweden, with under 10 acres per head, supplies the wants of her own people and has a net export of \$6.00 per head.

The United States, with over 7 acres of forest area per head, supplies her own wants and has a net export of 13 cents per head.

Canada, with over 163 acres per head, supplies her own wants and has a net export of \$5.08 per head.

These figures indicate that in Eastern Canada the proportion of forest area is sufficient for all the purposes which suggest forest conservation in connection with agriculture, water supply, and sanitary considerations.

Forest wealth of Canada.

We may therefore dismiss these points in relation to the forests of the four provinces. There are inequalities of condition, but as a whole this region is sufficiently clothed with forest to preserve to itself all the direct and indirect benefits of the forest in its relation to the cleared land and the inhabitants thereof.

The comparative figures already given seem to indicate that a *prima facie* case has been made out so strong in its general features as to throw the burden of proof upon those who deny the existence of a sufficient forest area in Canada to meet the requirements of the people and of their neighbours and others who seek to draw supplies from the abundant storehouse of Canada.

But area is one thing and *product per acre or per square mile* is another thing.

The question still remains, in what condition is our forest area for purposes of trade and commerce ?

Many attempts have been made to answer this question. One of the earliest almost synchronizes with the date of the formation of our Canadian Confederation. It is a paper prepared by Hon. Jas. Skead of Ottawa, and read by him before the Detroit Convention in 1865.

Mr. Skead stated that the whole area available for producing pine, north of the St. Lawrence, was 287,711 square miles. He divided the area into several sub-divisions as under :

1st. The Saguenay territory with an area of 27,000 square miles.			
2nd. The City of Quebec	do	do	8,000 do
3rd. The St. Maurice	do	do	21,000 do
4th. The Bout de l'Isle	do	do	9,600 do
5th. The Valley of the Ottawa	do	do	87,761 do
6th. The Rideau River	do	do	2,350 do
7th. The Trent River	do	do	6,200 do
8th. The Georgian Bay	do	do	12,800 do
9th. The French and Pigeon Rivers	do	do	48,000 do
10th. The Saguenay to Blanc Sablon	do	do	65,000 do

11th. In addition to the above Mr. Skead allowed 24,000 square miles in the peninsula of Western Canada, now the Ontario peninsula.

It will be observed that Mr. Skead did not include in his list any timber region west of Nepigon River.

Of the districts he mentions, he says that (speaking in 1865) No. 1 is rich in white pine and red pine, spruce, birch and tamarack ; No. 2 is moderately well wooded, producing white and red pine, birch, white cedar, spruce and tamarack ; No. 3 contains large quantities of white, red and yellow pine, spruce, birch, maple, elm, ash and tamarack ; No. 4 possesses a good deal of white and red pine, spruce, tamarack, and some ash ; No. 5, he says, "is the principal site of the lumber trade and has been so since 1806, when the first raft left the mouth of the Gatineau." He states that in the fifty-nine years since that event (to 1865) "but little over 20,000 square miles have been denuded of merchantable lumber." "It possesses white and red pine, both of the largest and best on the continent. It also yields tamarack ; spruce, ash, white oak, elm, birch, and all varieties of maple."

No. 6 he describes as furnishing white pine, and No. 7 as possessed of limited quantities of white and red pine, ash, oak, birch and tamarack. Of No. 8, he says it supplies a choice quality of red and white pine, some oak, elm, maple and birch. Of No. 9, he says it furnishes a quantity of white pine of small size but good quality, and a large quantity of other timber, as birch, maple, oak, elm, spruce, tamarack, ash and white cedar. No. 10 he describes as furnishing a large quantity of timber available for ship-building, and a quantity of the best description of birch, maple, oak, ash and elm. The 11th subdivision he describes as producing the finer hardwoods, such as oak, elm, black walnut, all the varieties of maple, chestnut, hickory, sycamore, basswood and ash.

In order not to burden too much the main body of this report I have placed in the appendix marked "C," extracts from Hon. Mr. Joly's report on our forests, made in 1877; Mr. James Little's statement in 1876; Mr. Stewart Thayne's evidence before a select standing committee of the Federal Parliament in 1878; Mr. A. T. Drummond's views in 1879, and Mr. Marler's statement before the American Forestry Congress held in Montreal in 1882; also extracts from the Hon. J. K. Ward's lecture in Montreal in 1883. These all contain important information.

In 1885, or twenty years after Mr. Skead had published his paper, the British Government procured, through the Governor General the Earl of Lansdowne, reports on the forests of Canada, the object being to obtain information on the reported proximate exhaustion of the forests of the Dominion.

The Lieutenant Governor of Prince Edward Island said in reply, "there are no forests of any extent in the province of Prince Edward Island, where they have disappeared under the axes of the settler and the lumberman."

The Lieutenant Governor of Nova Scotia forwarded two reports, one from Mr. James H. Austin and the other from Mr. W. A. Hendry. Mr. Austin said, "I find that in all probability all or nearly all the timber lands of this province will have been cut over for the first time by or perhaps before the expiration of six years from this date (July, 1884), but it does not follow that the supply will then be exhausted. It is found that by careful husbandry those trees which are too small for conversion into timber at the time of the first cutting, after fifteen or twenty years are of such size that a second cut nearly equal to the first can be obtained in many localities; consequently, if it were not for forest fires those lands which are carefully looked after would never become denuded of their timber." Mr. Austin stated that "the supply of pine and spruce is rapidly becoming exhausted; that there was a considerable quantity of hemlock timber, but that this was rapidly being destroyed for the bark; that the heavy birch had been largely converted into ton timber and exported, and that fires had rendered barren large tracts of country once covered with a stately growth of pine, spruce, &c."

Mr. Hendry dwelt upon the fire scourge and stated that in 1784 two-thirds of the province was burnt over within a fortnight and that every year during 45 years of his recollection fires had done more or less destruction. But such is the reproductive power of the land that, in his opinion, "there is no reason to anticipate any sudden or even defined period for the extermination of our forests, but that they are gradually being exhausted is true and it is proper to look this fact in the face."

On behalf of Ontario Mr. Phipps answered the inquiries sent by the British Government. He said that Ontario had 1,800 square miles known as timber limits: "There exist however, no data by which to form an exact idea of how long it would take at the present

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rate of consumption to exhaust the timber on these limits. Concerning the amount of timber lands possessed by the Government on which no license to cut has as yet been given, I would say that the timber limits sold last year (1883) extended as far north as 15 miles beyond Lake Nipissing. North of this point and extending east to Sturgeon River and west to Michipicoten River is a tract of country which there is reason to believe from the reports of those who have travelled across it, contains about 20,000 square miles of forest, possessing much valuable and merchantable timber."

Upon the general question Mr. Phipps said, "With regard to the duration of the timber supply of the Dominion of Canada no accurate calculation can be made as no data exist whereby to determine the amount of merchantable timber standing in the forest area. To obtain this would require surveys more extensive and costly than any which have been yet attempted. A general idea can be given by observing that altogether the area of timber lands in the Dominion of Canada is calculated to be about 280,000 square miles."

This estimate it will be observed is that made by Mr. Skead, who did not include the New Brunswick and the Nova Scotia forest area, the forest area in Quebec south of the St. Lawrence, the forest area in Ontario west of Lake Superior, nor that of British Columbia, to say nothing about the region intervening between Ontario and British Columbia.

QUEBEC.

The inquiry respecting the province of Quebec, was given to Mr. A. J. Russell (for 42 years Crown Timber Agent at Ottawa) to deal with. His report is full of information, as indeed would be naturally expected seeing that Mr. Russell was a singularly able man with exceptional opportunities.

Mr. Russell says that the territory in Quebec on the north side of the St. Lawrence "contains a forest region of upwards of 177,800 square miles in area; that by far the greatest portion of this area being fit for nothing else must remain a timber forest for ever, increasing in value as timber becomes scarce elsewhere."

Going into detail, Mr. Russell says: "The first or gulf section of this vast forest region extending from the eastern boundary of the province westward to the 65th degree of longitude covers 32,000 square miles." "From the very little known of it owing to the interior waters being unsurveyed, it seems as yet comparatively valueless as a timber yielding country. As the timber of this territory is generally small and far from abundant and the rivers are obstructed with high falls and rapids and as even the ruggedness of the country will be an obstruction, lumbering operations on it will be expensive compared with the value of the timber when got out, but expensive river improvements will be much less necessary for the descent of saw-logs and railway ties than for square timber. Timber found is birch, fir and spruce."

The adjoining territory embraced between the line of longitude 65 degrees west and a north westerly line from the mouth of the River Manicouagan, with a frontage on the Gulf and River St. Lawrence of about 180 miles and a maximum depth, back from the mouth of the Manicouagan to the height of land at its source, of about 250 miles, is about 48,460 square miles in area. This region differs from the previously described district in having its rivers generally surveyed or explored. It has timber of a good

quality in greater abundance especially in the southern part, including even scattering pine of value.

Of the two regions, embracing together an area of 80,600 square miles, Mr. Russell says: "The general inferiority and, in parts, absence of timber is due to the poverty and shallowness and, in parts, the entire absence of soil, where successive fires have burned off the thin covering of vegetable matter from the rocks, and not to the coldness of the climate, which is really most suitable for the growth of spruce and fairly so for tamarack. From this vast region great quantities of wood can be taken out with profit for purposes for which such timber, though generally small, may be serviceable as the timber of the more valuable forests becomes scarce and high in price."

The third great portion of this northern forest region Mr. Russell describes as commencing at a north-westerly line from the mouth of the River Manicouagan and extending westward to the eastern watershed of the River Gatineau, including the River Saguenay, the St. Maurice and the lower Ottawa River territories.

This division contains an area of 81,128 square miles, and is distinctly different from Nos. 1 and 2. Lumbering operations have been successfully carried on for many years in various parts of it. In its forests pine of the best quality is, or, in some parts it may be said, has been more abundant, and these adjoin the rear of the older, or are associated with the advancing new, settlements of the province.

In the eastern part of this great central division the rivers Portneuf, the Sault aux Cochons and the Escoumains have yielded proportionately much more good timber, including some pine, than the territory on the east side of the River Manicouagan, though in parts denuded by old forest fires; though originally well wooded the future supply from them must be very small.

On the Betsiamites the timber is very small, and vast brulés are prevalent which cannot yield timber of value till reproduced in the remote future.

Included in this central division is the Saguenay region, covering about 24,000 of the total 81,128 square miles of area. Pine grows far north on the Saguenay owing to climate admitting. The settlements around Lake St. John have, however, created great demands on the forest supply, and in the opinion of Mr. Russell, given in 1882, "must soon destroy what remains of the best timber forest of the Saguenay. However, from the generally mountainous character and extensive area from which the many large branches of the Saguenay draw their waters there will always be, with proper care, a sufficient supply of spruce and larch and other woods, after its pine is almost or altogether cut away, to sustain a considerable export trade in lumber." The character of the timber of the Saguenay country may be understood from the following statement:—In 1856 and 1857 there were cut nearly twice as many pine logs as spruce. In the following 20 years the proportion of spruce logs gradually increased and more rapidly during 1878-82, in which there were very nearly thirteen times as many spruce logs as pine taken out, the annual cut of pine logs during the period of 1878-82 having fallen irregularly to about half what it was in the early years, indicating that the pine is becoming scarce, while the spruce continues abundant in the Saguenay country. From 1856 to 1881 the totals cut on Crown lands in the Saguenay district were: saw-logs, 1,164,844 of pine and 3,432,185 of spruce; of square timber, 343 pieces of white pine, 3,531 of red pine, and 4,095 of spruce and other kinds of wood.

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The average of these 26 years is 45,000 logs of pine and 132,000 pieces of spruce. In 1881, the pine amounted to 13,434 pieces and the spruce to 444,171 pieces. In 1891 the pine amounted to 34,099 logs and the spruce to 537,191 pieces. The proportion during the 26 years was 25 logs of pine to 75 logs of spruce. In 1881 the proportion was three logs of pine to 97 of spruce. In 1891 it was six logs of pine to 94 of spruce. While, therefore, there has been a great increase in the proportion of spruce to pine in 1891 as compared with the 26 years' period, the comparison of 1891 with 1881 shows a relatively larger proportion of pine logs cut. The figures show that over 20,500 more pine logs were cut in 1891 than in 1881, and indicate the greater rate at which the pine supply is diminishing.

The next subdivision of the central division of the northern forest region of the province is that of the St. Maurice. This has an area of 16,000 square miles drained by the St. Maurice and its tributaries, and a large area of waste land of the Crown on the River Batiscan. The St. Maurice territory, though it has no such extensive tract equal in fertility and climate behind its old settlements on the St. Lawrence as the Saguenay territory has at Lake St. John, surpassed the Saguenay originally in the value of its timber forests, owing to the greater proportion of pine in its middle and lower course and on the tributaries therein adjoining it.

The quantities of timber cut on Crown lands in the St. Maurice territory from 1856 to 1881, inclusively, have been : of square timber, white pine, 56,921 pieces, and red pine, 5,453 pieces (up to 1864 ; no square pine taken out since) ; of other woods, 9,257 pieces ; of white pine saw-logs, 4,190,895 pieces ; spruce saw-logs, 1,740,546 pieces. In the first fifteen years, the quantities were 2,110,527 pine saw-logs and 562,071 spruce, and in the last ten years, 2,080,368 pine and 1,178,475 spruce saw-logs. In 1881, the number of pine sawlogs was 114,371, and of spruce, 112,224. In 1891, the number of pine saw-logs was, 190,220, and of spruce, 320,765. It is evident, therefore, that the decade has added emphasis to Mr. Russell's remark in 1882 "that it is becoming more difficult to maintain the same superior production of pine as formerly over spruce," pine having increased in the ten years over 66 per cent and spruce nearly 190 per cent.

The fourth district of this central division is the Lower Ottawa territory or agency, including the vacant and waste lands of the Crown on the northern tributaries of the Lower Ottawa, from the boundary of the St. Maurice territory to the watershed dividing the valley of the Rivière du Lièvre from that of the Gatineau. It embraces the valleys of the River Assomption, the River du Nord, the Petite Nation, the Blanche and du Lièvre, with other smaller tributaries of the Ottawa, the total of the included areas being 11,256 square miles. The rivers mentioned lie entirely within the pine-growing zone, excepting the Rivière du Lièvre, the main branch of which, for forty miles in direct distance down from its source, is in the poplar, birch, spruce and tamarack region, which, sweeping over from Weymontateuch on the St. Maurice and the Manouan, intersects the du Lièvre at the head of Lake Megonangoos, and continues westward over to and across the east and west branches of the Gatineau, in the Upper Ottawa territory adjoining.

In this subdivision, the returns of timber on which dues accrued to the Crown from 1856 to 1881, inclusively, were, square white pine, 106,398 pieces ; squared red pine, 943 pieces ; other woods, principally birch, 38,459 ; white pinesaw-logs, 5,735,931 pieces ; spruce saw-logs, 383,354, or one of spruce to 15 of pine, nearly. Of the square white pine, 95,155 pieces were cut in the first fifteen years, and 11,243 in the following ten years to 1881,

inclusive. Of square red pine, 809 pieces in the fifteen year period, and 134 in the succeeding ten year period. Of other squared timber, 22,125 were cut in the fifteen year, and 16,334 in the ten year period. Of pine saw-logs, 3,374,896 in the fifteen, and 2,361,035 in the ten year period. This shows a decrease of about 10 per cent in the average annual cut of pine logs. In 1881, the cut of pine reported to the Crown Lands Department was 405,709 logs, and in 1891 it was 451,538. Of spruce saw-logs, 35,501 only were cut in the fifteen years and 347,853 in the ten years, showing an increase in the ten year period approximating to ten times that of the fifteen year period. The cut in 1881 was 125,389, and in 1891 it was 249,077.

It is noticeable that the total of pine saw-logs from the Lower Ottawa territory during the whole period is about one-fourth greater than that from the St. Maurice territory, though the latter has about double the area of the former.

The Upper Ottawa territory of the province of Quebec extends from the eastern watershed of the River Gatineau up to the head of Lake Temiscamingue and the line there established as the western boundary of the province, having an extreme breadth westward of 200 miles, and 200 miles in depth northward from the mouth to the source of the Gatineau. Its depth thence westward for nearly 200 miles is almost altogether unknown, and, till the position of the height of land dividing the Ottawa waters from those of the Hudson Bay is determined by survey throughout that distance, the area of the Upper Ottawa territory can only be imperfectly approximated at 29,523 square miles.

Of the northern tributaries of the Upper Ottawa, the entire courses of the Kippewa, Dumoine, Black River and Coulonge and three-quarters of that of the Gatineau, lie within the pine-growing zone and embrace by far the best pine-growing forests in the province, in extent, in size and in quality of the timber.

Mr. Russell points out that on a lot containing 197 acres, 17,383 pine saw-logs were proved to have been cut in four years, or about 88 logs to the acre. He refers to the prices obtained for timber berths as evidence that pine must at the date of his writing (1882) be abundant, and then goes on to say: "there are tracts, however, where hardwood predominates, with pine interspersed, which is of the best quality from the richness of the soil and not being crowded. But towards the northern limit of its growth where it is intermingled with poplar, birch and cypress, it diminishes in size and quality. The upper quarter of the course of the Gatineau lies within the broad zone of poplar, birch, cypress and tamarack country that extends towards the height of land. Mr. Russell supplies the following statistics:

Total recorded product, Upper Ottawa Agency, from 1826 to 1881.

Provinces.	Pieces.		
	Square Pine.	Other Woods.	Pine Saw-logs
Ontario	7,173,182	494,824	22,005,108
Quebec	3,955,166	209,338	19,507,159
Total	11,128,348	704,162	41,512,267

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During fifty-six years an average of 199,600 pieces of square pine timber and of 741,300 pine saw-logs has been cut off the Upper Ottawa timber lands (both sides). During the fourteen years, 1867-81 (latter year included), the square white pine averaged 203,000 pieces and the pine saw-logs 2,500,000 in number a year.

Bringing the statistics down to the close of 1892 we have the following results; in the eleven years, 1882-92, the square white pine averaged 64,414 pieces and the pine saw-logs 3,807,800 in number a year.

The conclusion reached by Mr. Russell is as follows: "The valuable timber of our forests is being rapidly destroyed by the commercial demand for it, and by desolating fires, and we must now distinctly bear in mind that we have no new fields to fall back upon for the white pine which gives our trade its special value."

Mr. Russell refers to the region south of the St. Lawrence River in the following terms: "The area is about 34,200 superficial miles. Pine grows well in the Peninsula of Gaspé, including the county of Bonaventure, but owing to the general prevalence in many parts of a heavy growth of brown birch and maple and other hardwood trees, pine was originally less abundant, and is now scarce, much of it having been cut away, but large brown birch is abundant, and the growth of cedar in Gaspé is unequalled in size and quality. Excellent sound cedar is abundant, and brown birch is increasing in value now that walnut has become scarce."

"Westward the pine on the tributaries of the Restigouche has been cut away very much for square timber. The rivers falling into the St. Lawrence, though long lumbered upon for saw-logs, still yield a considerable proportion of pine."

In the whole of the part of the province south of the St. Lawrence the timber and saw-logs cut upon Crown lands, from 1856 to 1881, inclusive, are as follows:—Of square timber, 52,162 pieces of white pine, 3,828 pieces of red pine, and 102,788 pieces of all other woods. Of the 52,160 pieces of white pine, 44,530 pieces were cut during the first fifteen years of the period named, and 7,632 pieces in the succeeding ten years. Of the 102,788 pieces of other woods, 48,151 were cut in the first fifteen years, and 54,635 in the last ten years. Of saw-logs there were cut in the same twenty-five years 1,563,353 pieces of pine, and 6,326,346 pieces of spruce. Of the pine logs, 952,030 pieces were cut in the first fifteen years, and 611,323 pieces in the last ten years; of spruce saw-logs, 2,793,894 pieces in the first fifteen, and in the last ten years 3,532,452 pieces.

Put in tabular form the changes noted are as under:

	Pieces.
Square white pine, yearly average, 1856-71	3,000
do do do do do 1872-81	763
do do do do do 1882-91	153
Pine saw-logs yearly average, 1856-71	63,500
do do do do do 1872-81	61,132
do do do do do 1882-91	30,042
Spruce saw-logs yearly average, 1856-71	186,300
do do do do do 1872-81	353,245
do do do do do 1882-91	713,199

The Quebec Government has kindly supplied a map upon which is marked the area of the province, 129,000,525 acres. Of this, sold is 21,480,525 ; under license to cut timber is 32,076,160, and vacant lands, 75,443,840 acres. The map is coloured to show the areas in each county under license to cut timber.

ONTARIO.

In 1893 a return was brought down by the Government of Ontario, showing the estimated quantity of pine timber now standing upon the Crown domain of the province.

With respect to the estimated quantity the return says : " No estimate has been made of the quantity of pine timber standing upon the whole Crown domain. There is a great stretch of territory lying north of the 48th parallel of latitude and the northern limit of Ontario and between 85 west longitude and the easterly limit of the disputed territory, in respect of which no estimate has been made at all, containing 89,000 square miles or thereabouts, much of which it is known is not pine bearing, but other portions are, and as to some other parts there is no information. What has been done is to take certain areas known to be pine bearing and apply a reasonable estimate to them as below :

	Square Miles.
West of the Ottawa River and north-west of the limits sold in 1872 between 80 and 85 west longitude, and extending north to the 48th parallel of latitude.	24,000
Between Ottawa Agency and sale of 1881 in the Nipissing District.	410
	24,410

	Feet.
To this area an average of one million feet B.M. to the mile was applied	24,410,000,000
*Col. Dennis, late Deputy Minister of the Interior, estimated the timber in the disputed territory at.	26,000,000,000
	50,410,000,000
There is now subject to license in Ontario about 20,000 square miles which has been estimated to contain half a million feet to the mile, equalling. 10,000,000,000	10,000,000,000

This gives a total on the territory estimated of 60,410,000,000 feet, exclusive of the territory of which no attempt at an estimate has been made as above stated.

*See Mr. Burgess's letter on this estimate, page 15, following. (G.J.)

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Value.

The bonus value of 50,410,000,000 feet at \$1.50 a thousand, equals	\$ 75,615,000
The dues upon this at \$1 a thousand	50,410,000
	\$126,025,000
Add for duty on 10,000,000,000 feet, estimated on licensed lands at \$1 a thousand.	10,000,000
Making a total of.	\$136,025,000

Upon this estimate the Assistant Commissioner of Crown Lands remarks :

“The estimate was made in 1887 by the officers of the Department of Crown Lands after consultation. The territory north of that sold in 1872 had been penetrated in a great many directions by surveyors, forest rangers, timber explorers, mining explorers and others who from time to time had stated to officers of the department and through the papers the localities in which they had seen pine timber to a sufficient extent to warrant the region estimated being classed as pine bearing, and a reasonable average was applied to that area, so as to give a rough estimate of the quantity of pine which it was expected would be there, subject of course to some variations and to decrease through destruction by fire. The estimate put upon the territory is not a high one, one million feet to the mile, which is about three average trees to the acre. It is not of course considered that all the territory is timbered, but the average put upon it is thought to be a reasonable one. The estimate of the disputed territory is that given by Mr. J. Stoughton Dennis, late Deputy Minister of the Interior, who no doubt based his opinion on what he had seen and heard from others who had been through portions of it, analogous data to that applied to the older parts of the province. The total estimate for the province leaves out of account 89,000 square miles, not because there is no timber upon it, for reports warrant the belief that at different points there is a good deal of timber, but because no such exploration or examination has been made by anybody as would warrant the formation of any opinion as to what it would produce.

“Since this estimate was made, there has become payable to the department for timber cut on territory under license, from 1887 to 1892 inclusive, four million and a quarter of dollars or thereabouts, the equivalent of 4,250,000,000 feet b.m. of timber, which would still leave on the licensed territory 5,750,000,000 feet b.m., but it is believed that this estimate is considerably below what the licensed area will produce, and the 10,000,000,000 feet b.m. estimated as on territory subject to license in 1887 was much below the quantity then on this territory. From the 26,000,000,000 feet b.m. estimated by Col. Dennis as being on the disputed territory, there must be deducted about 122,000,000 feet b.m. cut under authority of the department since 1884, and the additional quantity cut in that territory under authority of the Government of Canada as to which we have no satisfactory data.

“Some explorations and estimates have been made for the different sales, and some exploring, estimating and exploratory surveying have been done in the disputed territory since the sale of 1890 not affected by the sale, but no explorations of a general character have been made in that territory upon which an estimate could be founded. The general statement of Col. Dennis made prior to 1887 was, as before stated, incorporated with the partial and rough estimate made in 1887 and afterwards used in the House by the late and present Commissioners and Treasurer Ross.

“As to the quantities remaining on berths upon which operations have for many or few years been carried on, the department is not in possession of data to warrant a definite estimate as to particular berths. The changes caused by cutting and fire and those caused by growth from year to year would make it impossible for the department to express even an opinion beyond that already given.”

In 1893 Mr. Edwards, M.P., (see *Hansard* 1893, page 3319) said: "There are those who believe that our pine lumber is very nearly exhausted and has been most largely exhausted at the instance of the lumberman. This, Mr. Speaker, is not at all the case. There is another source from which the forests of Canada have suffered and far more extensively than from the lumberman's axe. I refer to forest fires and to fires which are brought about by the settlement of the country—not in every case by legitimate settlement, but very largely by illegitimate settlement. It is safe to say, and I am sure that every lumberman in this House will bear me out in the statement, that ten times the amount of forest wealth has been destroyed in Canada through that instrumentality than has been cut by the lumbermen; and those who desire to protect our forests should devote themselves to advocating the care of our forests and discouraging in every way this illegitimate settlement. If this is done I will venture this statement, that you may let our timber be cut even as it is being cut to-day and it will last this country for at least one hundred, perhaps two hundred years to come."

This brings down the information to a late date, so far as the two central provinces are concerned.

Respecting the province of British Columbia, it is difficult to procure information. The Dominion Government agent estimates the Douglas pine, cedar, spruce, Alaska pine, alder, maple, yew, and larch standing in the railway belt at 25,000,000,000, feet of a present value of \$25,000,000. Information supplied by Mr. R. E. Gosnell, as to the timber resources of British Columbia will be found in appendix "O."

NOTES UPON THE PREVIOUS EXCERPTS.

In addition to the remarks made *en passant* a few further remarks upon these several estimates may be in place.

Mr. Skead, in referring to the Ottawa valley, remarks that during fifty-nine years to 1865, "but little over 20,000 square miles had been denuded of merchantable timber." He also gave the area of the Ottawa valley region at 87,000 square miles. Mr. Russell says more recent surveys give the area at 60,080 square miles. Mr. Skead, from his practical acquaintance with the subject and from the means of information at his hand, would be likely to be accurate about the area cut over. It would thus appear that in 1865, one-third of the whole area of the Ottawa valley was denuded of its timber.

Upon Mr. Joly's estimate, given in Appendix C, I have to present that honourable gentleman's views, as stated in a letter dated 6th November, 1893. He says:—

"I am not in possession of any data by which to compare with an approach to exactitude the probable area of timber still left growing in the Province of Quebec with the Hon. Jas. Skead's estimate of 1865. The area may be nearly the same, as it could only have been reduced by the settlements made since then (which do not amount to much), but the proportion of valuable timber on these timber limits must be enormously reduced, and you can form an idea of the valuable first-class timber at present, as compared with 1865, by comparing the Cullers' Returns for these two periods."

With respect to the estimate brought down to the Ontario Legislature, I have to say that on sending to the Department of the Interior for the file of correspondence containing Colonel Dennis's estimate in order to verify the statement attributed to Colonel Dennis, I received the following letter from the Deputy Minister:—

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OTTAWA, 30th December, 1893.

DEAR MR. JOHNSON,—I duly received yours of the 22nd in regard to the estimate made by Colonel Dennis, in the autumn of 1878, with respect to the timber in the portion of Ontario then known as the Disputed Territory. I may say to you that the estimate in question, although signed by Colonel Dennis, was really made by myself, and that in writing it out from a little shorthand draft which I had made for myself, I committed the mistake which will be easily understood by shorthand writers of writing 26,000,000,000 feet instead of 2,000,000,000 feet. I should add that the letter containing the estimate in question was addressed to Mr. A. H. Dymond who was then preparing a pamphlet for the Ontario Government upon North-western Ontario, its boundaries, resources and communications. Colonel Dennis was in very poor health at the time, and did not examine the figures carefully, so that the mistake for the time being, passed unobserved. When the pamphlet was published, however, and an advance copy of it sent down, I immediately observed the blunder into which I had fallen, and on the 13th February, 1879, Colonel Dennis addressed to Mr. Dymond a letter explaining that although the quantity was correct in the notes which I had made, I had inadvertently stated it wrongly in writing the letter, and a strong appeal was made by him to Mr. Dymond to have the correction made in such a way that the public would not be misled. One week later Colonel Dennis wrote a letter to Mr. Dymond renewing this request, and pressing upon him the importance of it. Notwithstanding this, however, the Ontario Government would appear, no doubt inadvertently, to have continued the erroneous statement all through their returns and publications. I may mention to you that I consulted every person who would be likely to give reliable information on the subject, before making the estimate of 2,000,000,000 feet, including for instance, Mr. Hugh Sutherland, Mr. Simon J. Dawson, Mr. James Isbester, Mr. John Shields and Mr. Lindsey Russell, besides a number of surveyors and explorers who were more or less directly connected with the department at the time, and who had considerable opportunity of examining the timber resources of that section of the country. Nothing since has occurred to come within the range of my observation which would appear to me to justify any change in the figures, and I am quite certain that 26,000,000,000 is enormously in excess of the actual timber resources of that locality, and that 2,000,000,000 feet as then stated, would be a safe estimate to-day.

In a word, then, let me say that the estimate of 26,000,000,000 feet furnished to Mr. Dymond in 1878 was an erroneous one, the error was discovered immediately the printed pamphlet was placed in my hands, and the compiler was not only notified of the error and of what the figures ought to be, but was most earnestly requested to do what might be necessary to correct any misapprehension which the publication of the erroneous figures might have produced. I should add that this subject is at the present time engaging the attention of the Minister of the Interior, and will, in all probability, be brought to the notice of the Government of Ontario.

Yours very truly,

(Sgd.) A. M. BURGESS.

From this explanation, it appears that the estimate submitted to the Ontario Legislature in 1893 is in excess of what it should be by 24,000 million feet in quantity and by \$60,000,000 in value.

CONCLUSIONS FROM FOREGOING STATEMENTS.

Taking all these statements, the conclusions to be reached from them are:—

- 1st. That the first quality pine has nearly disappeared.
- 2nd. That of the second quality pine, there is a considerable supply.
- 3rd. That of other timber woods, there is a large supply.
- 4th. That we are within measurable distance of the time when with the exception of spruce, as to wood, and of British Columbia as to provinces, Canada shall cease to be a wood-exporting country.

It would seem natural that pine of the first quality should have very greatly diminished, because while it, in common with other forest trees, is exposed to the woodman's axe, the settler's torch and to forest fires, it does not grow as rapidly as other woods. The destructive forces are vastly greater than the productive.

There are three ways to test the accuracy of the first conclusion.

- (a.) The size of the white pine as given in the cullers' returns.
- (b.) The size as given in the provincial returns as sworn to by the lumbermen and checked in the Crown Lands Department.
- (c.) The supply to the English market, where the best white pine is required.

(a.) An analysis of the cullers' returns of the Port of Quebec and other St. Lawrence ports gives the following result :—

Description.	Average cubic feet per piece.						
	1865.	1870.	1875.	1880.	1885.	1890.	1893.
Waney white pine.....	80	56	57	61	57	58	58
Square white pine.....	66	55	57	55	52	44	44
Square red pine.....	59	39	37	39	38	39	39

(See Statistics, Table 5, for details).

These figures show that in 1865 the average piece of waney white pine was 38 per cent larger than in 1893; that the average piece of square white pine was 50 per cent larger in 1865 than in 1893, and that the square red pine was over 51 per cent larger. A decrease in size during 28 years of 27 per cent and 33 per cent respectively indicates that, if size and quality go together, as far back as 25 years ago we had lost the first-class merchantable pine from our forests.

The figures also show a singular uniformity in size since 1870.

(b.) Taking the provincial returns, * we find the following results :—

PINE SAW-LOGS.

Province.	Average size, board measure.						
	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Ontario.....	122½	110	106½	103	96	94	98½
Quebec.....	138	135	137½	139	141	164	127½

It will be seen that the province of Ontario shows a yearly decrease in contents of the saw-logs until 1893 when there was a slight increase. The province of Quebec shows 1st. A general increase in contents, (until 1893, when there was a sudden decrease), and 2nd. A generally larger log than the province of Ontario.

I am assured that the figures "164" for 1892 are incorrect, and that the pine saw-logs of the Upper Ottawa district, which give the abnormally high measurement of 1892, did not in that year run higher than in former years. With respect to the second point, I am informed that in the province of Quebec, the scale used is Scribner's, while that used in Ontario was Doyle's, and that Scribner's gives fully 10 per cent more on an average. This would account to a considerable extent for the difference between the two provinces as shown in 1887, but not for the divergence shown in subsequent years.

*Provincial Government returns in Crown Lands Reports.

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With respect to the abnormally large contents of the Quebec logs in 1892, I addressed the following letter to the Agent at Hull, of the Quebec Crown Lands:—

OTTAWA, January 3rd, 1894.

DEAR SIR,—In the report of the Crown Lands, 1892, published by the Quebec Government, it appears that the pine saw-logs reported from the Upper Ottawa averaged nearly 199 feet, and that the square white pine averaged 86 feet. In the previous year the average was, for logs, 141, and for square over 49, showing that the average of logs before 1892 ran below 150, and for square was about 50.

Can you give me any explanation of this great increase in size in 1892, both in logs and square, as compared with the previous experience?

An early reply will oblige.

Yours truly,

(Sgd.) GEORGE JOHNSON.

H. McGRADY, Esq., Quebec Crown Timber Agent, Hull, P.Q.

Mr. McGrady referred the letter to the Crown Lands Department at Quebec and both the Crown Timber Agent and the Assistant Commissioner agreed in the conclusion that there was an error in the return of 1892.

There is no doubt that there was an increase in the size of the pine logs in the Upper Ottawa Agency in 1892 and the meaning of it is that some fine pine had been discovered in the back part of the district and brought down. The very low figures for 1893 seem as doubtful as the very high figures for 1892.

(c.) Taking the Trade and Navigation Returns of Canada we find that in 1865 the total exports to all countries of white pine timber amounted to 606,300 tons, valued at \$2,963,534 or \$4.90 per ton. In 1893 the quantity of the same exported was 105,579 tons, valued at \$14 per ton.

Taking 1865 as a standard and testing the output of square white pine by the returns for later years, we find the following:—

EXPORT TO ALL COUNTRIES.

White Pine Timber.

	Tons.	Value.
1865	606,300	\$2,963,534
1877-79	282,250	2,737,194
1880-82	227,705	2,335,604
1883-85	219,379	2,771,776
1886-88	138,329	1,609,295
1889-91	157,245	2,260,517
1892	123,994	1,645,711
1893	105,789	1,481,155

Nearly 99 per cent of the whole going to Great Britain, as the following table shows :—

	Tons.	Value.	Value per Ton.
All countries, 1865	606,300	\$2,963,534	\$ 4 90
Great Britain, 1877-79, average	279,243	2,715,914	9 72
do 1880-82 do	220,731	2,304,937	10 43
do 1883-85 do	216,210	2,752,456	12 73
do 1886-88 do	137,894	1,604,621	11 64
do 1889-91 do	156,265	2,239,090	14 32
do 1892	123,820	1,644,031	13 27
do 1893	105,579	1,479,255	14 00

There has been a decrease in the quantity exported of over 82 per cent while the decrease in total value has been but little over 50 per cent.

It would appear that as a mercantile transaction the export of later years was as good as that of 1865, unless the cost of getting out the quantity in later years has been more than 32 per cent greater than that of 1865.

On the main point, however, under consideration, viz., the decreased size and consequent decreased quality of the white pine, there can no doubt, since the chief reasons for the decreased demand in the United Kingdom is the deterioration in quality, England's requirements being as great as ever, but the proportion going from Canada being less and less, the percentage for the years 1885-93 being 9·20 per cent against 21·91 for the years 1872-77 for hewn, and 23·14 per cent for 1885-93 for sawn wood, against 27·54 per cent for 1872-77. (See Statistics, Tables 6a and 6b.)

We come now to the other conclusions derived from the study of the statement of experts, as mentioned on page 15.

At the Forestry Convention held in Montreal in 1882, Mr. Marler, said to be an authority on matters connected with our forests, gave a calculation showing that the census cut of 1871 required an aggregate of 22,271,384 trees. He gave fifty trees to the acre, and showed that 445,428 acres were denuded each year of their trees.

Taking the same calculation, there were cut out of the forest area of the country in 1881 an aggregate of 30,578,922 trees and in 1891 an aggregate of 29,550,000 trees, requiring, respectively, 611,600 acres and 590,990 acres. In other words, taking these three returns as fairly averaging the cut of the intervening years, 16,480,000 acres (25,800 square miles) of forest area have been denuded during thirty years past to supply the demands, home and foreign, made upon our forests. This seems small compared with the whole area under forest. The basis of the calculation, fifty trees to the acre, giving, as it does, thirty feet all round for each tree, from which to procure light and air, and plant food from the soil, appears to be sufficient, since apple trees, requiring a large area in which to spread and secure sunlight for ripening their fruit, are each given 33 feet every direction in any well-planted orchard. Mr. Marler's calculation, based upon the cubic feet in a standard log, seems reasonable, and, if anything, to err through being too small, since the census returns of 1871 did not include fence poles, railway ties, telegraph poles, pulpwood, and hand-made shingles, all of which Mr. Marler passed over in his computation. Moreover, he allowed nothing for the destruction by fire and waste. These allowed for, it is evident that the

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area, over which the destructive forces have had full play, is very much greater than the 25,800 square miles required under Mr. Marler's calculation.

As has been shown already, the railways of this country have made a demand upon the forest for nearly 60,000,000 ties.

Mr. Joly endorses the view that more pine timber has been destroyed by fire than has been cut down and taken out by the lumbermen. Mr. Edwards says ten trees have been destroyed by fire to every one cut down by the lumberman. If these statements are any way near the mark, then not less than 258,000 square miles of the total in the four provinces east of the eastern boundary of Manitoba have been denuded of their timber growth.

But 258,000 square miles is close upon the total area of the forest, as given by Mr. Skead, who placed it at 287,000 square miles.

But, as before remarked, Mr. Skead did not include any area in the province of Ontario west of Nepigon River. Nor did he include the eastern Maritime Provinces. Allowing that the whole area, including lakes and rivers, is 500,000 square miles, these 258,000 square miles form the larger portion.

In the consideration of the force of these calculations a good deal depends upon the extent of the denudation of the forest and still more upon the degree of the afforesting processes which nature is constantly carrying on.

Mr. Marler (already quoted), in referring in 1882 to the belt of forest area to the south of the St. Lawrence in the province of Quebec, said: "Since twenty years, this great belt has been intersected by some dozen railways cutting up the land like a checker-board, and by this means we must look forward, that by another ten years this belt will be entirely denuded of all kinds of timber."

From a study of the map, it seems that this very region is the best perhaps in all Canada to investigate, for the purpose, 1st, of seeing how far Mr. Marler's prophecy has been accomplished, 2nd, of ascertaining, to some extent at least, the reproductive powers at work.

The region in Quebec, south of the St. Lawrence, offers peculiar advantages for the study of the forest area. It is pierced by several rivers such as the Metapedia, Matane, Rimouski, Madeleine, Trois Pistoles, du Loup, Chaudière, Ouelle, du Sud, St. Francis, Yamaska, Richelieu, Chateauguay, etc. It is well intersected by railways passing through the region in every direction and connecting it with the great centres of Canada and the United States.

By dividing this region into three subdivisions, we may readily examine the process which is going on. These three subdivisions are: 1st. The region below Levis, consisting of the counties of Bonaventure, Gaspé, Rimouski, Temiscouata, Kamouraska, L'Islet, Montmagny and Bellechase. 2nd. The St. Lawrence River counties above, and including, Levis, consisting of Levis, Lotbinière, Nicolet, Yamaska, Richelieu, Verchères, Chambly, La Prairie, Beauharnois and Huntingdon. 3rd. The southern and border counties, consisting of Megantic, Beauce, Drummond and Arthabaska, Richmond and Wolfe, Compton, Sherbrooke, Stanstead, Bagot, St. Hyacinthe, Shefford, Brome, Missisquoi, Iberville, Rouville, St. Jean, Napierville, Chateauguay, Dorchester, and Soulanges and Vaudreuil.

The census returns for these counties show the following results :—

CUT OF PINE.

For the whole region, 1891	10,509,289	cubic feet.
do do do 1881	8,958,886	do
do do do 1871	7,780,906	do

The increase in 1881 over 1871 was over 15 per cent, and in 1891 over 1881 it was over 17 per cent.

Further analysis shows that in the subdivisions the cut of pine was :—

No. 1.

1891	5,727,354	cubic feet.
1881	1,272,573	do
1871	1,033,213	do

No. 2.

1891	2,219,973	cubic feet.
1881	1,936,853	do
1871	3,387,459	do

No. 3.

1891	2,561,962	cubic feet.
1881	5,749,460	do
1871	3,360,234	do

The details will be found in statistical table No. 7.

These returns indicate: 1st. That during twenty years in the first division the cut has rapidly increased so that it was in 1891 more than five times that of 1871. 2nd. That in the second subdivision the cut of 1891 is somewhat more than that of 1881, but about a third less than that of 1871. 3rd. That in the third subdivision the cut of 1891 is less than half that of 1881, while that of 1881 was 70 per cent more than that of 1871, and that of 1891 was nearly a quarter less than that of 1871.

In a general way these figures show that the decrease in the cut of pine would be very considerable during twenty years if it were not for the results in the Lower St. Lawrence division.* But taking the two subdivisions above Levis we find that though the cut has decreased from 1871 to 1891 by about two million cubic feet, yet, that during the intermediate period, namely, in 1881, the cut was nearly one million more than in 1871. Allowing for errors the fact seems clearly established that in a region where the seigniorial grants were large in area and where the alienation of Crown lands has been extensive the growth of pine to a useful size has been considerable and has more than offset the destruction by fire.

This appears to be the general experience. No doubt there was a time when the axe and the torch were destroying the forest faster than it could be reproduced, but the

* This conclusion is corroborated by the returns of the Crown Timber agents for a series of years. From 1856-71 the yearly average number of pieces of square pine was 3,000; of pine logs, 63,500; from 1872-81 it was square pine, 763, logs 61,132; from 1882-91 it was square pine, 153, logs 30,042.

[These are only adduced in evidence of the trend of affairs. They are not to be added to the census returns to show the total cut, as that would be duplication.]

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conclusion seems irresistible that the forces of protection and reproduction are now practically almost as powerful as the forces of destruction.

The great giants have largely disappeared. The ripe trees have been taken away like ripe fruit and for more than thirty years we have been depending more and more upon the newer growth, and finding more of it. Thus the returns of the province of Quebec show that from 1866 to 1878 the number of pine logs returned by the Crown Timber agents of the province was 18,752,274 with an average of 137½ feet b.m., and from 1878 to 1890 the number was 27,965,278 logs with an average of 138½ feet b.m.

That the quantity of useful pine in the country is constantly being replenished is seen in the returns for very old counties. Thus the Yorks of Ontario in 1871 produced 80,000 cubic feet of white pine; in 1881, 987,000 cubic feet, and in 1891, 562,000. The Durhams in 1871 produced 161,000 cubic feet; in 1881, 67,000, and in 1891, 111,000. The oldest counties, those upon the lake shore, thus seem able to keep up a constant supply, suggesting reproduction on a much larger scale than many have thought possible.

The experience of woodsmen and other experts seems to point in the same direction.

Mr. Russell, already quoted in another connection, says in this regard: "On the southern tributaries of the Saguenay that interlace with those of the St. Maurice there is much good soil and where the trees fit to make saw-logs of have been cut away the small trees left if not destroyed by fire will soon be of useful size. This remark is applicable to all timber regions as I have had ample occasion to notice. In one case where no error could occur a small timber berth with well-marked outlines, which had been stripped of every tree fit to be a saw-log, under an able manager, was cut over by him again eight years afterwards when by the increased size of the small trees formerly left as unfit a greater number of saw-logs were made from them than were got from the first cut eight years before. On the Gatineau I passed through an extensive grove of young red pine trees of fine growth that had previously been three times completely cut over since the commencement of lumbering there."

Mr. R. W. Phipps said: "For many years statements have been made concerning the possible exhaustion of Canadian forests and very diverse opinions have been expressed on the subject by persons of apparently equal experience and knowledge. It appears to me when it has been stated that there is but five or there is but ten years' supply remaining this may be fairly understood to refer to the possibility of obtaining timber of the same sizes as we have heretofore cut. It is probable that over a great extent of this territory many of the largest trees have been taken out. But it should be remembered that the forest has great reproductive power, that young trees continually replace the old and that in twenty years time, trees now but of medium size will furnish excellent timber."

Mr. W. A. Hendry, of Nova Scotia, writes: "If active measures were adopted to put a stop to the ravages of forest fires and to prevent the felling of trees of a less size than a fixed number of inches diameter, I am sure that Nova Scotia will continue to be a timber producing and exporting country for all time to come, as our best timber lands can never be used for profitable agricultural purposes. As an instance of the marvellous productiveness of our forests, I would instance a small section of eight or ten square miles through which the Sackville River runs. Up to the year 1840 every house in Halifax was built of timber from that section and as every one knows it has produced an enormous amount of cordwood, house frames, boards, deals, wharf logs, shingles, &c., ever since. Within three years the writer has travelled through every part of the section referred to and it appears as far from exhaustion now as it did 40 years ago. The trees are not large, but they are tall and healthy; perhaps not many up to two feet in diameter."

Mr. Austin, of the same province, writes :—

“It is found that by careful husbanding, those trees which are too small for conversion into lumber at the time of the first cutting, after fifteen or twenty years supply a second cutting nearly equal to the first cut; consequently if it were not for forest fires those lands that are carefully looked after would never become denuded of their timber.”

The census returns of Nova Scotia show that the quantity of pine, spruce, and other woods cut in 1870 amounted to 15,494,000 cubic feet; in 1880 to 27,745,000 cubic feet, and in 1890 to 46,408,000 cubic feet.

The exports from the province since 1877 by three year periods, have been (yearly average):

1877-79, yearly average.....	\$	939,571
1880-82, do do		1,291,381
1883-85, do do		1,483,311
1886-88, do do		1,504,866
1889-91, do do		1,739,981
1892.....		1,604,779
1893.....		1,823,960

Assuming that the home demand has increased with the population, it is evident that the fact of increase noted by the census returns is well supported by the trade returns. This could only be the case in a province like Nova Scotia on the hypothesis that the reproductiveness of the forest noted by Mr. Hendry has been an important factor.

Thus by the concurrent statistics of two regions—the southern Quebec and the Nova Scotian, similar in having been long settled and being well supplied with railways and waterways—supporting the views of the experts quoted, it would seem to be established that during the last twenty years the powers of production and protection have fairly held their own against the powers of destruction.

Since 1867, 76,692,700 pieces of pine, of which 72,236,200 were saw-logs, have been reported by the Crown Timber agencies as taken out of the forests of the Upper Ottawa district which includes the region from the water-shed of the Lièvre to the head waters of the Ottawa and all its tributaries.

Of these saw-logs 36,877,700 have been cut on the Quebec side and 35,358,500 on the Ontario side of this district.

This procession of logs has been moving steadily down the Upper Ottawa and its numerous streams since 1806, when the first boat-load was taken from the mouth of the Gatineau. Between 1826 and 1867, 6,315,000 logs and 7,480,000 pieces of square pine were floated away.

In all those years settlers were hewing out for themselves homes by destroying the forest.

The area drained by the Upper Ottawa and its tributaries is stated to be about 30,000 square miles.

Thus during eighty-five years these 30,000 square miles—the very heart of the pine producing area of Canada—have been supplying pine at a rapidly accelerating rate. For

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forty years 1826-67 an annual average of 354,000 pieces ; for fifteen years, 1867-81, an annual average of 2,590,000 pieces ; for ten years, 1882-91, an annual average of 3,785,000.

At a sale of timber limits in Ottawa on the 24th January, 1894, one parcel on the Coulonge River, 235 square miles, sold for \$1.40 an acre, lakes and streams included. Besides this amount the purchasers have to pay the annual ground rent of \$3.00 a square mile and the timber dues of 26 cents on each standard pine log of 200 feet board measurement.

About the same time, the newspapers announced the sale of 205 square miles of timber limits on the Ontario side of Lake Temiscamingue, at the rate of \$2.32 per acre.

It is evident, therefore, that notwithstanding all the millions of pieces which have been taken out as above described, pine must still be abundant to yield a profit on such purchases besides the cost of manufacturing it into lumber.

Further corroboration of the value of the timber limits is found in the fact that the lumbermen are holding on to the timber limits.

PROTECTION OF FORESTS.

Means have been employed to check the destructive, and to assist the reproductive, forces.

QUEBEC.

In the province of Quebec, the Legislature, by an Act passed in 1883, and by another passed in 1889, has divided the province into twenty-one fire districts within which the commissioner has the power to employ the necessary number of men to act in the suppression of any forest fires. A sum of \$5,000 is annually set apart by the Government for that purpose, and the licentiates who are also interested in the preservation of their timber are obliged to contribute a similar amount to cover the expenses incurred in connection therewith. As an additional preservative of the forests the regulations of 1888 prohibit the licentiates from cutting pine trees measuring less than 12 inches and trees of any other kind less than 9 inches on the stump. Lastly, as an incentive to the planting and cultivation of forest trees the Legislature of Quebec in 1882 provided for the bonusing of any one planting one acre with forest trees with a land order entitling him to public lands, which may be opened for sale, to the extent of \$12 for each acre planted. In respect to the latter, Hon. Mr. Joly in a recent letter intimates that the tree planting has not been as successful as he at the time thought it was likely to be, though there is now an appreciable interest taken in tree planting which increases year by year.

Recently a large tract of land in the Saguenay region has been set apart by the legislature for a park under the name of the Laurentides Park.

ONTARIO.

Various measures have been adopted by the Government of Ontario to protect the forest wealth of the province from destruction, especially by fire.

In 1878 the "Fire Act" (chap. 23) was passed. It empowers the Lieutenant Governor in Council to proclaim fire districts, within which, from April 1st to November 1st, no fires may be lighted in or near the woods except for clearing land, cooking, obtaining warmth, or for some industrial purpose, and then only with the precautions laid down.

For clearing land fires must be started, managed and cared for with every reasonable care and precaution to prevent them spreading to the forest. For fires for cooking, obtaining warmth, or for any industrial purpose, selection must be made of a spot with the smallest quantity of inflammable matter, which must be removed for a radius of ten feet; care must be taken to prevent the fire spreading, and to extinguish it before leaving. If a match, tobacco ash, gunwadding, &c., is dropped, the fire from it must be completely extinguished before leaving the spot. Those in charge of lumbering, surveying, or other camping parties are to read and explain the Act to those under them. Railway engines must have approved means of guarding against fires from their ashpans and smokestacks, and the engine-driver in charge must see to this. The penalty is a fine up to \$50, with three months' imprisonment in default, and for railway companies a penalty of \$100. Crown land agents, wood and forest agents, free grant agents, and bush rangers are specially charged to enforce the Act.

In the same year fire district No. 1 was proclaimed under this Act, having for its southern boundary Lake Huron, Georgian Bay, and the irregular line from Midland Bay to the Ottawa River at the southerly limit of the licensed forests; for its western boundary, the Ottawa River and the dividing line between Ontario and Quebec; for its northern boundary, that of the province; and for its eastern boundary, "Salters line" and its production, being a few miles east of meridian 84, near Bruce Mines, north of St. Joseph Island.

In 1886 fire district No. 2 was proclaimed to consist of all of Ontario west of No. 1. Thus all of the province is included in these fire districts, and is subject to the Fire Act, except the old settled districts southward of the licensed timber limits.

In the previous year, 1885, a new step of great importance had been taken, namely, the appointment of fire rangers. These men were appointed for the protection of limits, where the license holder would agree to pay half the expense. They were to be nominated by the limit owners, subject to the veto of the department, and would be under their supervision and direction as well as that of the government timber agents and rangers. Their duties were to inform settlers and others concerned as to the Fire Act, and enforce its observance, to suppress fires, engaging assistance when necessary for this purpose, and to inform both the department and the limit owner of the damage done. They were employed from the beginning of May to the end of September.

The success and popularity of this system may be seen by its growth from year to year. In 1885 thirty-seven fire rangers were employed at a cost of under \$4,000, half of which was paid by the licensees. In 1886 there were forty-five fire rangers at a joint cost of \$10,000, besides a number of the lumbermen's forest rangers having authority given them to enforce the Act. In 1887 there were fifty-five fire rangers and a joint expenditure of \$15,000, much help having to be hired to fight fires. In 1888 the joint cost was \$18,000, there being seventy rangers who fought dangerous fires. In 1889 there were seventy-five rangers, the expenditure being \$15,000, and there being little fire. In 1890 there were eighty-three rangers at a cost of \$17,000, with no fires. In 1891 there were ninety-eight rangers on the limits of thirty-seven lumbermen including the largest limit holders. The season was dry and there were bad fires, but the rangers reported their extent, so that the lumbermen could cut the killed trees before they were bored and the government could dispose of the burnt timber on the unlicensed Crown lands.

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The cost was \$20,000. In 1892 there was little fire and the joint cost of government and lumbermen was \$18,000.

Arbor Day, suggested by the Forestry Associations, has been accepted by the Minister of Education, who allows a holiday to the public school children on that day to plant trees. The planting is not extensive, but there is the advantage that the rising generation may learn the lesson that trees are friends to be fostered and not enemies to be destroyed.

In the sale of timber limits in 1890 a provident condition was made in the terms of sale, that the saw-logs must not be removed but must be manufactured into lumber in the locality, thus effectually preventing the stripping of our forests for the benefits of others only. This precedent was abandoned in the sale of 1892.

An important step is the setting apart of a forest reservation and national park of eighteen townships on the Nipissing district called the Algonquin Park. Two-thirds of it was already under license and the remaining third was sold at the limits sale of 1892, so that it will not have the advantage of being a reserved forest under state management. Only the pine was sold to the lumbermen, other trees being excepted, as was the case with all the limits sold that year.

NEW BRUNSWICK.

An Act to prevent the destruction of forests by fire was passed in New Brunswick in 1885. It is framed after the Ontario "Fire Act" of 1878, and indeed the chief enacting clauses are identical. The principal differences are as follows: The period for restriction in the use of fire is from May 1st to December 1st; the radius to be cleared round fires for cooking, &c., is five instead of ten feet; persons starting fires on lands not their own or allowing them to spread to lands not their own shall in case of negligence be liable to penalties; railway companies shall keep section men to watch for and extinguish fires, and when passing through woods shall clear away combustibles to the edge of the wood; the penalties are from \$20 to \$200, and for railway companies from \$50 to \$200; Supervisors of roads, commissioners of highways, county councillors and constables are in case of forest fires to order out men to stop the progress of the fire, the penalty for refusing being \$5 to \$20; Crown land agents, free grants commissioners, Labour Act commissioners, lumber scalers, fishery wardens and deputy crown land surveyors are to enforce the provisions of the Act.

A condition of the lumbering license is that no pine or spruce tree shall be cut which will not make a log at least eighteen feet in length and ten inches at the small end.

The N. B. Crown Lands Department report for 1888 says: "The subject of the protection of our forest areas from destruction by fires is being continually forced upon our notice. These great areas are being further penetrated year by year by lines of railroad, by highways, by pioneers and settlers and by sportsmen and hunters, and the risk from the careless or accidental firing of the forests is continually on the increase. In other wood-producing countries, such as Sweden, Norway, Russia, and some of the United States, stringent laws and regulations are in force for the prevention of such fires, and for the prevention of waste in cutting, and large sums of money are appropriated for the enforcement of these laws and for the carrying out of an efficient protective service.

"Our chief source of local revenue is in our timber lands and their destruction would necessarily entail direct taxation for a part of the ordinary current expenses of the country, but with proper care and guardianship these timber limits will continue to produce for an indefinite period as large, if not a larger, revenue than now.

"In view of these facts it would seem that this subject merits more consideration than it has received in the past and we could gather useful lessons from the experience of other countries. A moderate expenditure for guardianship during the season when fires are most prevalent, would, I am satisfied, be a great practical advantage. Something should also be done to check the wanton and careless destruction of young and rapidly growing timber trees by woodsmen in carrying on lumber operations.

"In both these latter respects we might learn much from the foresters of the neighbouring state of Maine."

The commission appointed to consider the administration of the Crown timber lands of New Brunswick, in their report dated March 2nd, 1892, made the following recommendation :—

"The practice largely prevailing in connection with the hemlock industry of permitting the operators to remove the bark only, leaving the remainder of the tree to rot when felled, is, we believe, a very pernicious one. Although this wood is not now valuable in some sections of the province in comparison with spruce, pine and cedar, it is not unreasonable to anticipate that it will in the near future become so. Hemlock logs left in the woods are great feeders of forest fires, and we are creditably informed that bark operations are a faithful source of such fires, which in some cases have destroyed valuable tracts of government timber. Another objectionable feature of this business is the great waste of young spruce trees, which are cut for bedding, or skidding the hemlock, and also broken in felling it. These, if allowed to grow, would eventually make saw-logs. Very stringent regulations should be made to prevent bark operators from cutting or destroying spruce or other merchantable wood, and in cases where such wood is destroyed or used, each tree should be rated as a saw-log, and so paid for."*

The commissioners also make the following recommendations :—

"We recommend that surveys and explorations be made where most needed, by competent judges of timber upon land, so that the Government may know approximately the quantity of lumber owned by the province, where it most needs cutting, and what, if any lands should be allowed to rest in order that the trees may mature."

"We beg to express our conviction that positive injury has been done to the lumbering interests of the province, to its reputation as a good agricultural country, as well as to the people directly concerned, by permitting settlers to locate on lands which were well timbered, but unfit for settlement or agricultural purposes. We hope this practice will in future be avoided, and the valuable timber areas of the province thus reserved for their legitimate purposes."

NOVA SCOTIA.

Chapter 65 of the Revised Statutes of Nova Scotia (Fifth Series, 1884) is similar to the Fire Act of New Brunswick. The penalties are from \$20 to \$400, and in the case of railway companies \$100 for each offence. In addition to the penalties, persons starting fires on the lands of others, or allowing them to spread from their own are liable to double damages to the Crown or private persons affected.

*The recommendations of the commission have had good effect. By the new form of license issued in 1893 the operator is prohibited from cutting spruce or pine for skidding, bedding, or other similar use, any trees so cut to be charged stumpage as merchantable logs. By another clause no spruce or pine may be cut "even for piling" under 18 feet long and 10 inches diameter at small end, under penalty of double stumpage and forfeiture of license. By a further clause the regulations against holding limits for speculative purposes without working them, are made more stringent.

Forest wealth of Canada.

BRITISH COLUMBIA.

The Statutes of British Columbia, 1890, contain a short Act, the "Bush Fire Act," to protect its forests.

PRINCE EDWARD ISLAND.

There is a law in Prince Edward Island restricting the careless use of fires endangering woods.

THE FEDERAL AUTHORITIES AND THE FOREST.

The relation sustained by the federal authorities to the forest is, for the most part, indirect rather than direct. (For forest reserves of the Dominion *see* appendix Q.) The Federal Government, for instance, has charge of the fisheries and seeks to maintain in efficiency the river fisheries. In so doing, it comes in contact with the hard fact that the efforts of the Department of Marine and Fisheries are rendered more or less abortive by the adverse conditions created and intensified year by year through the denudation of the forest.

The Department of Agriculture has the same interest in the question, because of the intimate connection between the forest and the farm.

The Department of Railways and Canals has a deep interest in the question because, if the innumerable streams feeding the great reservoir of Lake Ontario are reduced in volume, that reservoir will lose its head and the pressure will be less upon the river carrying away its surplus. Hence a smaller volume of water in the great watercourse, and hence a diminished supply, which will be felt in the canals by the reduction of the depth on the sills (*see* appendix F).

But the chief immediate relation of the federal authorities to the forest is caused by their control over the export and import trade of the country. This refers especially to the four eastern provinces and to British Columbia, in all of which the control of the forests is vested in the Provincial Governments, with the exception of the railway belt in British Columbia, the timber on which would not exceed in value the wood exports of the country in a single year. About one-fourth of the total exports of the country is products of the forest.

It becomes necessary, therefore, to examine the trade returns more closely than has been done, to the present point, in this inquiry.

The Parliament of Canada has, from the first, legislated in respect to the forest in the only way it could, namely, by imposing an export duty, by way of restraint on production. Chapter 44, schedule F, Acts of 1886, provided for the levy of duties on export of shingle bolts and stave bolts, spruce logs and pine logs, \$1 per M. feet b.m., and on oak logs, \$2 per M. feet b.m.

By chapter 35, Acts of 1875, the duties on exports of stave bolts and oak logs were abolished.

In Acts, 1886, chapter 37, and in chapter 33, Revised Statutes, Canada, section 6 (both assented to 2nd June, 1886), the duty on exported pine logs was increased to \$2,

and on shingle bolts, to \$1.50, power being given to the Governor in Council to remove the duty altogether or to increase it on pine logs to \$3 per M. feet, in case public exigencies required a change in either direction.

During the fiscal years ended the 30th June, 1887 and 1888, the duty on exported pine logs remained at \$2 per M. During the fiscal year ended 30th June, 1889, the duty on exported pine logs was raised to \$3, from the 13th November, 1888. During the fiscal year 1890, the duty was \$2, and during the fiscal year 1891, it was \$2, till the 13th October, 1890, when the export duty was abolished. It has not since been re-imposed.

In the United States, the import duties were, in 1874 :—

1. For timber hewn or sawed, or used on wharf building, or for spars..... 20 p.c.
2. Timber sided and squared..... 1 cent per cubic ft.
3. Sawed boards, planks, deals, and other lumber of hemlock, whitewood, sycamore and basswood..... \$1.00 per M. b.m.
4. All other varieties of sawed lumber..... \$2.00 per M. b.m.
5. Planed or finished lumber 50c. per M. for each side planed or finished, in addition to other rates.
6. Planed on one side, tongued and grooved (additional)..... \$1.00 per M.
7. Planed on two sides, tongued and grooved (additional)-..... \$1.50 per M.
8. Logs and round timber (unmanufactured) and ship timber, free
9. Shingle bolts, stave bolts and heading bolts, free.
10. Woods, poplar or others for the manufacture of paper, free.

The Act of 1883 made no changes excepting that a duty of ten per cent was imposed on pulp of wood.

In 1890 the United States McKinley Tariff (so called) provided that timber, hewn and sawn, should pay an import duty of 10 per cent; lumber sided or squared, $\frac{1}{2}$ cent per cubic foot. Nos. 3, 4, 5, 6, 7, 8, 9 and 10 remained the same, except that white pine, which by the Act of 1893 had a duty of \$2 per thousand, was admitted at \$1. This Act contained a proviso as follows: "Provided that in case any foreign country shall impose an export duty upon pine, spruce, elm, or other logs or upon stave bolts, shingle wood, or heading blocks exported to the United States from such country, then the duty upon the sawn lumber shall remain the same as fixed by the law in force previous to the passage of this Act" of 1890.

The effect of this proviso was, that when the United States tariff went into force 6th October, 1890, the Canadian Government repealed the export duty by proclamation dated 11th October 1890, and the United States import duty on white pine boards became \$1 instead of remaining at the old duty of \$2.

The duty on spruce boards remained as before though the Canadian Government had taken off the export duty on spruce logs. Subsequently, the United States appraisers ruled that the Douglas pine of British Columbia was a spruce lumber and therefore subject to a duty of \$2 instead of the duty of \$1 as white pine.

Forest wealth of Canada.

Wood pulp was subjected by the tariff of 1890 to duties of import varying from \$2.50 per ton to \$7—an increase from 10 per cent ad valorem. This particular phase of the question will be discussed later on.*

The Canadian export duty on logs, etc., was doubtless imposed, primarily, with the object of limiting demand so as to give the forests additional chance of recuperation.

Analysis of the export duty shows that since 1868 the total yield has been \$521,211, of which \$70,299 was obtained prior to 1871, in which year the amounts were separated so that they can be apportioned. This leaves \$450,911, and this amount was obtained as follows:—

Shingle bolts.....	\$ 43,034
Stave bolts.....	6,912
Oak logs.....	8,565
Spruce logs.....	185,734
Pine logs.....	206,666
Total.....	\$ 450,911

* Since the above was written the United States tariff has been modified. The rates of the tariff of 1894 are as under:—

DUTIABLE—WOOD AND MANUFACTURES OF.

179. Osier or willow, prepared for basket-maker's use, twenty per cent ad valorem; manufactures of osier or willow, twenty-five per cent ad valorem; chair cane, or reeds, wrought or manufactured from rattans or reeds, ten per cent ad valorem.

180. Casks and barrels, empty, sugar-box shooks, and packing boxes and packing box shooks, of wood, not specially provided for in this Act, twenty-five per cent ad valorem.

180½. Tooth-picks of vegetable substance, thirty-five per cent ad valorem.

181. House or cabinet furniture, of wood, wholly or partially finished, manufactures of wood, or of which wood is the component material of chief value, not specially provided for in this Act, twenty-five per cent ad valorem.

FREE—WOOD.

672. Logs, and round unmanufactured timber not specially enumerated or provided for in this Act.

673. Firewood, handle bolts, heading bolts, stave bolts, and shingle bolts, hop poles, fence posts, railway ties, ship timber, and ship planking, not specially provided for in this Act.

674. Timber, hewn and sawed, and timber used for spars and in building wharfs.

675. Timber, squared or sided.

676. Sawed boards, planks, deals, and other lumber, rough or dressed, except boards, plank, deals and other lumber of cedar, lignum-vitæ, lancewood, ebony, box, granadilla, mahogany, rosewood, satinwood, and all other cabinet woods.

677. Pine clapboards.

678. Spruce clapboards.

679. Hubs for wheels, posts, last blocks, wagon blocks, oar blocks, gun blocks, heading, and all like blocks and sticks, rough, hewn or sawed only.

680. Laths.

681. Pickets and palings.

682. Shingles.

683. Staves of wood of all kinds, wood unmanufactured: Provided, That all of the articles mentioned in paragraphs six hundred and seventy-two to six hundred and eighty-three, inclusive, when imported from any country which lays an export duty or imposes discriminating stumpage dues on any of them, shall be subject to the duties existing prior to the passage of this Act.

684. Woods namely, cedar, lignum-vitæ, lancewood, ebony, box, granadilla, mahogany, rosewood, satinwood, and all forms of cabinet woods, in the log, rough or hewn; bamboo and rattan unmanufactured; briar root or briar wood, and similar wood unmanufactured, or not further manufactured than cut into blocks suitable for the articles into which they are intended to be converted; bamboo, reeds, and sticks of partridge, hair wood, pimento, orange, myrtle, and other woods, not otherwise specially provided for in this Act, in the rough, or not further manufactured than cut into lengths suitable for sticks for umbrellas, parasols, sunshades, whips, or walking canes; and Indian malacca joints, not further manufactured than cut into suitable lengths for the manufactures into which they are intended to be converted.

PULP.

303. Mechanically ground wood pulp and chemical wood pulp unbleached or bleached, ten per cent ad valorem.

To obtain this sum there were exported 30,769 cords of shingle and stave bolts, and 350,479 M. feet b.m. of saw-logs.

Of the cords, 6,911 were stave bolts, and the remainder shingle bolts. Of the M. feet, 210,200 were spruce, 4,283 oak, and the remainder pine logs.

The first point of inquiry is, whether this export duty acted in restraint of the business, and the second is whether it had any influence upon the price obtained.

The Trade and Navigation Returns show the following exports of pine logs during recent years :—

Year ended 30th June,	M. Feet.	Duty.
1884.....	974	\$2 per M. feet.
do do 1885.....	380	2 do
do do 1886.....	2,869	2 do
do do 1887.....	6,350	2 do
do do 1888.....	468	2 do
do do 1889.....	10,839	4½ mos. 2, remainder \$3.
do do 1890.....	32,144	2
do do 1891.....	36,699	3½ mos. 2, when repealed.
do do 1892.....	73,963	No duty.
do do 1893.....	127,084	do

The above table shows that from 1884 to 1888 (both years included) the amount exported was only 200 M. feet more than the amount exported in the one year 1889, that in 1889 the export took a sudden jump; that in 1890, notwithstanding the export duty, the amount exported was nearly three times that of 1889; that in 1891 the repeal of the duty only caused an increase of 4,500 M. feet and that since the duty was repealed the export of the first full year without the duty was more than double that of 1890 and that of the second full year was nearly four times that of 1890.

These figures seem to indicate that foreign demand for pine logs began in the fiscal year 1889, in spite of the export duty imposed, and that this demand has continued at an annually accelerated rate. The fact of the increase in 1889 when for eight months the duty was \$3, and of the still further increase in 1890 when the duty was \$2, and the sudden and large increase over the figures from 1884 to 1888 preclude the admissibility of the argument that the increase has been owing to the removal of the export duty.

The conclusion would appear a legitimate one that the increased demand of recent years is not owing to the removal of the export duty but would have gone on even if that duty had been retained. Thus, from a forestry point of view the export duty was an unavailing effort of protection for our forests, while from the point of view of the financial effect upon the Federal exchequer the removal of the duty has resulted in the loss of about \$100,000 a year.

It might be that this sudden expansion of the trade was caused by a decrease either in the price of the log or of the freight rates. Returns from the railways show that the freight rates on lumber have remained practically the same. The sworn returns of the lumbermen to the Customs authorities show that the prices of pine logs have undergone very little change, the average price having been in 1886, \$8.52; 1887, \$7.75; 1888, \$8.25; 1889, \$8.70; 1890, \$8.14; 1891, \$8.54; 1892, \$8.81, and 1893,

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\$8.32. During the period 1881-92 (twelve years) the average price was \$8.30 per M. feet, and in 1893 it was \$8.32. Spruce logs in twelve years averaged \$5.07 and in 1893 were \$5.84.

Neither is the expansion caused by a change from one form of wood export to another. No pine deals were exported to the United States (according to the trade returns) in 1893, '92 or '91. In 1890 there was a small export of 42 standard hundred; in 1889, of 106 standard; in 1888, of 12 standard; in 1887, of 519 standard; in 1886, of 288 standard. It is evident, therefore, that the sudden expansion is not due to a change from one class of wood products to another.

Examination shows that an immensely preponderating proportion of this export of pine logs is from Ontario. Out of 280,729 feet pine logs exported in the period 1889-93, 279,373 M. were from Ontario.

Further examination shows that these exports are chiefly from the Georgian Bay district to the east coast of Michigan.

The following is an extract from the Ontario Crown Lands report for 1893:—

“The quantity of logs exported to the United States in the round to be sawn up there was larger than in the previous year, but it did not attain anything like the proportions which were stated by those who assumed to be, but were not, acquainted with the facts. The total output for the province of saw-logs and round timber for the year was 742,491,791 feet. Of this quantity 210,682,802 feet were exported in the log to the United States, and, in addition, 24,250,000 feet b.m. of the previous season's cut was exported this year, making the total export of logs for the year 1893 cut on the licensed lands of the Crown 234,932,802 feet. This does not include about 10,000,000 feet, b.m. cut on Dominion lands (Indian reserves), all of which was exported in the log, to be sawn in the United States. It will, therefore, be seen that the export from Ontario to the United States will not be more than 50 per cent of the estimates which have appeared from time to time in the public press as the conjectures of some and the confirmed opinions of others. The department has taken every pains to ascertain the exact quantities which were exported, and the figures here given are believed to be accurate.”

Mr. Hardy here says the quantity of logs exported to the United States in the round for the calendar year was 244,932,802 feet b.m., made up as follows:—

From year's cut.....	210,682,802	feet b.m.
do previous year's cut.....	24,250,000	do
do Indian reserves (about).....	10,000,000	do
	244,932,802	do

This does not include logs cut on private property and exported.

The amount thus given by the Ontario Crown Lands Department greatly exceeds the log export from Ontario as reported in the Canadian Trade and Navigation Returns, which is as follows for the fiscal year 1892-93:—

Pine saw-logs.....	125,837,000	feet b. m.
Elm do.....	33,615,000	do
Hemlock saw-logs.....	224,000	do
Oak do.....	1,347,000	do
All other do.....	4,054,000	do
	165,077,000	do

It thus appears that there is a difference between the amount of saw-logs exported from Ontario to the United States, as reported by the Crown Lands Department for the calendar year 1893, and the Trade and Navigation Returns of logs exported to all countries for the fiscal year 1892-93, of 79,855,802 feet b.m.

This difference must arise from one of two causes: either the export of saw-logs must have increased greatly during the season of navigation of 1893 over that of 1892; or else the Customs officials failed to secure a full return of the saw-logs rafted to the United States. An exact comparison could be made if the Customs Department returned the amount of the export for the navigable season of 1893.

A statement by the Department of Customs (*see* statistical table 17), with the names of exporters from the Georgian Bay, makes the export of logs 143,788,158 feet for the fiscal year 1893; it was 57,840,978 feet for 1892. This does not seem to agree with the Trade and Navigation Returns, which give an export of only 125,837,000 of pine for the whole of Ontario.

The cut of saw-logs for 1893, according to the Ontario Crown Lands report, was as follows:—

Pine saw-logs	718,215,271	feet b.m.
Other do	8,095,124	do
Total	726,310,395	do

The proportion exported, being 210,682,802 feet b.m., is 29 per cent, with the possibility of a further proportion being exported later, as occurred in 1893.

On the coast of Michigan there are centres of milling industry, chiefly situated in Saginaw Bay, which opens its mouth just across the lake from the Georgian Bay region, within convenient distance for rafting purposes. Men interested in the saw-mill industry in Saginaw City, Tawas, Bay City, and other places in this bay, purchased timber limits in the Georgian Bay region, and since 1890, cut and rafted the logs across Lake Huron to Saginaw Bay, thus adding one other source of supply to those they already possessed.

It has been urged that they are compelled to obtain these logs or close their mills, and that if Canada should put an export duty on these logs the results would be, 1st, to preserve our interests in the Georgian Bay region from depletion, and, 2nd, * to compel the lumbermen of Saginaw Bay to bring pressure upon the United States Government for the purpose of obtaining a tariff, on wood and products, more satisfactory to Canada.

Nobody can object on public grounds to the Saginaw Bay lumbermen or anybody else purchasing limits and cutting logs provided the limitations as to the size of the log cut are such as to ensure the speedy reproduction of the forest. It is not fair to ask the present generation to forego their chance to make money out of the forest in order that coming generations may make the money. The present generation ought to be determined to hand down the precious heritage of the forest, not only in as good a condition as they found it, but improved in every respect. They ought also to have their fair share in the good to be derived from the presence of the forest. The two things can be

* This argument has been set aside by the march of events, the present United States tariff being greatly modified.

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done and done simultaneously. Nature's enormous reproductive powers, aided to but a comparatively small degree by us, will take care that the forest is replenished.

It is important, however, to understand the exact amount of dependence the Saginaw Bay lumbermen have upon Georgian Bay logs. This can best be done by showing the proportion which the Georgian Bay logs bear to the total supply required by the Saginaw Bay lumbermen.

Taking the latest returns to be had it is found that in 1892 the city of Saginaw and Tawas City required 793,184,159 feet of saw logs. These were supplied as follows:—

	Feet.
Rafted out of streams in Michigan	234,114,329
do from Georgian Bay	184,500,000
do do upper lake points in Michigan.....	63,500,000
Hauled by rail.....	311,069,830
Total.....	793,184,159

It will be seen that this one bay, which by no means includes all the saw-mills of the state, but which takes all the exported product of the Georgian Bay region, obtains less than one-quarter of its needed supply from Canada.

In the face of this fact it can hardly be successfully affirmed that the pine-growing group of states, Michigan, Wisconsin, and Minnesota, have become exhausted. Yet that is the contention of those who advocate the imposition of an export duty on logs in order to preserve our forests from speedy depletion.

According to the census of 1890 the saw-mill products of Michigan were valued at nearly \$116,000,000, or \$115,000,000 more than the value of the exported saw-logs from the Georgian Bay region in 1892.

From the forestry side of this question the arguments adduced seem not to be bottomed on facts, appear indeed to be controverted by the facts.

There still remains the question, who shall do the sawing of these logs? Shall it be done on the Michigan side or on the Canadian side of Lake Huron? An export duty of \$2 or \$3 would no more prevent Michigan saw-mill owners sawing the logs in the future than it did in 1889 and 1890, when the sudden expansion began. To be effective in the prevention of this business the export duty would have to be raised. If it were possible, by greatly increasing the export duty, to render it unprofitable for the Saginaw Bay lumbermen to tow their rafts across the lake they would have to turn to other quarters for their supply. The pine growing region of the three states already referred to would be searched more closely, and it must be remembered that the Southern States have not less than 207,000,000 acres, or more than one-half their whole area under forest. We would be deprived of a market for our logs and our manufacturers of lumber would not saw a single log more.*

* Unless it happened that the higher export duty imposed compelled Michigan lumbermen to turn to Southern pine, while still maintaining their saw-mills in Michigan. The cost of transporting the Southern pine might raise the price of lumber generally. This would have a good effect upon Canadian lumber mills, the product of which would be sought even at the increased price, provided no counteracting influence was created by an increased import tariff by the United States.

The circumstances of the Georgian Bay region are so exceptional that they must be dealt with by themselves and by the only authority that can deal best with them—the Government of Ontario. It can deal with the question by adopting an enlightened policy which shall comprehend a vigorous assistance of the powers of reproduction by insisting upon no trees being felled under a fixed diameter, by strict attention to fires, and by enlarged plans of afforestation based upon the study of the measures adopted by France and Germany. Possibly it may also be able to make part of the contract under which the standing timber is disposed of by the Crown, that logs shall be sawn on this side of the lake. But this latter measure is of doubtful expediency.

It seems a fair conclusion that the lumber trade is of such a character that export duties, imposed or repealed, have little, if any, effect upon prices, and, therefore, little effect by way of restraint of volume of trade.

Some help might be given the Provincial Government by the Federal authorities in other ways. For instance, the towing of logs is a menace to shipping as much in a shallow lake like Lake Huron, as it is on the ocean, the danger of rafts breaking up being even greater on Lake Huron than on the high seas.

It was recently stated in the London (Eng.) correspondence of the *New York Times*, that efforts were being made to induce Canada to prohibit the export of rafts from the ocean coast, on the ground that ocean transport was endangered by the partly submerged logs floating about. The same danger exists in Lake Huron. Through that lake goes a large quantity of shipping. The Suez Canal is considered one of the great world-commerce paths. The "Soo" Canal has a larger number of vessels going through it than the Suez; the figures for 1892 being, "Soo" 12,580, Suez, 3,559.

Again, complaints have been made that the chafing of the logs while being towed knocks off the bark and the fibre next it, and that this refuse not only destroys the nets, but is rapidly depleting the whitefish and salmon-trout fisheries in Lake Huron.

In the balancing of disadvantages it might be found more conducive to the prosperity of Canada to forbid towing altogether.

WOOD PULP AND PULP WOOD.

The manufacture of wood pulp and the export, not only of pulp, but of wood for making it, have attained large proportions, and the industry has become of great importance. First practised in Germany in 1846, it was adopted considerably later in Canada. The census of 1891 gives a product of 261,155 cords of pulpwood, which can not be compared with the cut in previous decades, as there was no record of pulpwood in the census returns of 1881 or 1871. There is comparatively little pulpwood cut on licensed Crown lands, a large proportion being obtained from private property, and some wood being probably used for this purpose which is not so classified.

There has been a great increase in the number of pulp mills in the Dominion. They are not mentioned in the census of 1871, but the census returns of 1881 and 1891 show a rapid growth:—

	No.	Capital invested.	Number employees.	Wages.	Raw material.	Products.
1881.....	5	\$ 92,000	68	\$ 15,720	\$ 9,400	\$ 63,000
1891.....	24	2,900,907	1,025	292,099	469,845	1,067,810

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The growth in other countries has also been rapid. Professor Schlich, in his "Manual of Forestry, 1884," estimated that the annual consumption in Germany of wood for pulp was 40,000,000 cubic feet. The United States Consular Report, 1887, says that in Norway, the export of wood pulp rose from 8,540 tons in 1875, to 26,055 tons in 1880, and 90,781 tons in 1885. Of Sweden, the United States Consular Report, 1891, says: "The production of wood pulp has increased very rapidly of late years. It is made chiefly from spruce. The great proportion of the wood pulp is consumed at home, yet, in 1885, 16,000 tons were exported, and in 1889, the export had increased to more than 52,000 tons."

The New York Forest Commission, in its report for 1891, says: "In the last eight years the amount of timber used by the pulp mills has increased 500 per cent. In the year just past, 1891, the timber cut for wood pulp in the great forest of northern New York, was equal to one-third the amount cut by the lumbermen."

The exports from Canada, both of wood pulp and pulpwood, have also made rapid strides. They are not mentioned in the Trade and Navigation Returns till 1890, but from that year onward they are recorded as follows:—

	Wood pulp, value.	Pulpwood, value.
1890	\$ 80,005	\$168,180
1891	188,198	280,619
1892	219,458	335,303
1893	386,092	455,893

There has risen a demand for an export duty on pulpwood, both to protect our forests and to keep the industry in Canada, instead of sending the raw material out of the country to be manufactured. Such an export duty has been tried elsewhere, but without much success. The United States Consular Report for 1890, says of Norway: "The forests have lately suffered the loss of many young trees, cut down either for exportation or for pulp manufacture at domestic mills. The so-called cellulose wood, prepared from small trees and cut very short, to escape the export duty on wood, is now in great demand in foreign markets."

It is obvious that, to be effective, the export duties must cover the wood suitable for making pulp, of any form and of the smallest dimensions, even down to chips, otherwise the wood may be so cut as to evade the duty.

It must also be remembered that the woods used for making pulp reproduce themselves more readily and more rapidly than the pine forests, and they grow over far greater areas.

GEO. JOHNSON,

Statistician.

APPENDIX "A."

FOREST COMMISSION, STATE OF NEW YORK.

(Telegram, 24th January, 1894.)

ALBANY, N. Y., 24th January, 1894.

The new State Forest Commission to-day submitted a special report to the Legislature strongly favouring the issue of \$3,000,000 in bonds to purchase lands for the State park within the Adirondack and Catskill forests. The commission says: "On the preservation of our forests depends the water supply of our rivers and canals, the motive power of great manufacturing interests, the priceless benefits offered by our forest sanitariums, the many delightful places of refuge from the summer heat of cities, and the existence of our fish and game. But, above all, on their preservation depends that great factor in our political economy, our future timber supply."

The great forest of Northern New York covers an area of 3,583,502 acres. The Adirondack park or proposed reservation includes 2,807,760 acres, classified as follows: Primeval forest, 1,575,483 acres; lumbered forest, 1,027,955 acres; denuded, 50,050 acres; burned, 13,430 acres; waste, 18,526 acres; water, 57,104 acres; wild meadows, 495 acres; improved, 64,717 acres. The difference in area—781,043 acres—between the entire forest and that of the proposed reservation represents scattered or isolated tracts of woodland which could not be well included in the park lines.

The State owns 731,459 acres in the Adirondack forest, of which 551,093 acres are situated within the limits of the reservation. By the sale of the outlying lands and timber rights, and reinvestment of the proceeds in the interior, it is expected that the State ownership within the park can soon be increased to 900,000 acres or more. It is not proposed to buy improved lands, hotel property, nor water fronts and high-priced property held for summer residents, nor is it proposed at this time to purchase lands owned by private clubs. The commission thinks that eventually the State should purchase 1,200,000 acres, of which 677,955 acres is lumbered forest and 522,045 acres primeval forest.

It is recommended that the State acquire by purchase 100,000 acres in the Catskill region.

The bill which the commission submits, authorizes the State Controller to issue \$3,000,000 in bonds bearing interest at a rate not exceeding four per cent, one-twentieth of the bonds to be paid each year after issue. The bonds would be sold by the Controller as fast as needed at not less than par, and the proceeds would be devoted mainly to purchasing lands for the State park.

AMERICAN FORESTRY ASSOCIATION.

(Telegram, March 7th, 1894.)

ALBANY, N. Y., March 7th. The American Forestry Association met at Albany, N. Y. on Tuesday. Governor Flower, in the course of an address of welcome, said, among other things:—

"Long before there were any forest commissions in the various states, the men of your association, acting from purely disinterested motives, held annual conventions in the large cities of the United States and Canada, and aroused thereby the attention of the people to the necessity of forest preservation. As a result of the early labours in this direction many of our states have now established forest commissions; the Federal Government has become interested in the work, and throughout our entire land the celebration of an Arbor day is the occasion of implanting in the minds of thousands of school children the first principles of forestry.

"It is eminently proper that the forest associations represented in this congress meet in Albany, for it was in the Empire state that the ideas which those associations promulgated were first planted and first bore fruit. Of the 44 states of the Union, New York was the first to establish a department of forestry and provide liberal appropria-

Forest wealth of Canada.

tions needed for carrying on its work. The state of New York was also the first to assume control over its public lands and to place them under a definite system of management—one which will not only insure forest preservation, but will at the same time furnish a perpetual supply of lumber and a constant source of revenue to the state.

“New York is so fortunate in its natural and topographical advantages, that we have unusually large areas of timbered wilderness which has thus far been spared from destruction. In the Adirondack region alone, we have about 3,700,000 acres of wooded area, and in the Catskill region is another large tract. New York is also particularly well supplied in respect to watercourses and lakes, which depend very largely for their supply upon the vast tracts of wooded land. Because of our forests we are shielded from the long periods of drought such as are characteristic of the treeless states of the West. In 1885, steps were taken towards the establishment of the Adirondack park.

“Most of the lands in the Adirondacks available for the purpose of a forest preserve are now owned by private individuals or associations, who retain them, not for the purpose of lumbering, but for the present, at least, as places of recreation and sport. It has been thought that those holdings might be turned into a State preserve, and the object of forest preservation attained by an arrangement between the State and the holders. If forest preservation in this state is at stake, our people could certainly afford to be taxed many millions of dollars rather than to suffer the disastrous effect of forest denudation.

“Following the ideas and suggestions which have been promulgated by the forest experts belonging to your associations, we intend then that our forests shall not only protect our water supply, and thereby our agriculture and commercial interests, and furnish summer homes and sanitariums for our people, but that they shall at the same time yield a revenue which shall pay the cost of maintenance and a handsome sum beside. Our commission has already this year sold stumpage rights which will yield the State upwards of \$50,000. This is more than the entire cost of the department.

“This matter of selling timber rights has been misstated, and the impression has gained ground in some localities that the State permits the cutting of all trees over twelve inches in diameter. In reply it should be stated that none of the hard woods, which, by the way, represent 60 per cent of the forest, can be cut under the present law.

“All those who argue that cutting for revenue is inconsistent with the preservation of our forests, I would refer to the successful operation of this system in Europe, and I would also call attention to the fact that the New York State Forest Commission is selling to-day timber rights on thousands of acres which have been cut over by the lumbermen in some cases three times—lands which, owing to the natural tendency of the spruce to reproduce itself, now offer another desirable crop of timber.”

“Following Governor Fowler, came the Hon. J. Sterling Morton, Secretary of Agriculture of the United States. He is a large man with a pleasant face, but has a weak voice. He demonstrated that he is familiar with the science of forest preservation, and spoke very interestingly. He attributed the denudation of the forest to the ignorance of the axeman and the hunter, the one who has indiscriminately cut down trees, and the other who has started fires that have devastated vast tracts. He argued that the people should be taught forestry as a sick man is taught health. He also said that the observance of Arbor day on the plains has been forced upon the people in order that the inhabitants of those districts may find some shelter. All but five states have now adopted this day as one in which to recognize the duty of planting trees. ‘The man who seeks to reproduce trees is a benefactor to his race,’ said the speaker. There are in the United States 466,000,000 acres of wooded land, while in Russia there are 426,000,000 acres. The consumption of wood for all purposes in the United States takes the timber from 25,000 acres a year.

“Prof. B. E. Fernow, chief of the Forestry Bureau at Washington, said that the white pine of Michigan had been cut so recklessly that it would be five years before any more could be cut in those forests. Something like \$40,000,000 had been expended in forest preservation in this country, and four times that amount will be required before the forest can be restored to a state that will warrant free cutting. In all our forests there are upwards of 425 kinds of wood, but only about 50 are in the market.

APPENDIX "B."

DIGEST OF REPORTS—ONTARIO.

PROVINCIAL SURVEYORS' REPORTS, CROWN LANDS REPORT, 1885.

Bleazard Township, Nipissing District. N.W. Lake Nipissing. Well timbered with spruce, tamarack, birch, balsam, poplar, cedar, maple, in order named. A few scattered pine through northerly part, inferior quality, mostly scrubby. "May be a million feet." Extensive brûlé.

Lorain Township, Nipissing District. On Lake Temiscamingue. S.W. part, valuable white pine timber limit. S.E. and N.E. burnt, but still large amount of good red and white pine. N.W. part balsam, cedar, spruce, tamarack, white birch, poplar, etc.

Olrig Township, Nipissing District. Near Mattawan. Maple, birch, balsam, etc. The pine mostly cut.

Bower Township, Nipissing District. Algonquin Park. N.E. corner partly burnt. N.W. corner stripped of pine; the rest much large good pine with some hardwood.

Clara Township, Nipissing District. Near Algonquin Park. Much brûlé, and long lumbered, little timber left. A few pine of poor quality in south three concessions.

Cameron Township, Nipissing District. East of Algonquin Park. Brûlé 30 years old; was good pine and a few patches left. Second growth dense. Pitch pine, poplar, white birch, etc.

Trill Township, Nipissing District. Spanish River. In W. and N.W. fine hardwood bush. Concession 4, 5 and 6 considerable pine but much of it scrubby. S. part, birch, maple, spruce, balsam, tamarack and scrubby pine. Considerable black birch, and birdseye maple. A scattering of good pine throughout the township.

Levack Township, Nipissing District. Near Spanish River. Part pine and tamarack; (shown on his plan) the pine of good quality, large, straight and sound. Part mixed timber, pine, spruce, tamarack, balsam, poplar, birch and maple. Part brûlé, small pitch pine and poplar.

Cartier Township, Nipissing District. Spanish River. Pine scattered in brûlé, and in green districts of centre and S.E. In N., especially N.W., large red and white pine numerous. Brûlé grown with pitch pine, poplar, birch and cherry.

Freswick Township, Nipissing District. Algonquin Park. Pine never very much and now lumbered. E. and S. burnt; the rest on high ground, maple, beech and birch, in swamps, tamarack, spruce and cedar.

Cascaden Township, Algoma District. Vermillion River. Greater part brûlé, with usual second growth. S.E. part green birch, poplar, spruce, balsam and maple. A few good pine but too scattered to be of much commercial value.

Dowling Township, Algoma District. Vermillion River. Very little pine. Birch, poplar, balsam, spruce, tamarack, maple, cedar, ash and ironwood in order named. Con. 6 old brûlé grown with balsam, birch, poplar, hazel and alder.

Baldwin Township, Algoma District. Spanish River. S. portion much burnt, pine lumbered and burnt; much swamp. N. and W. some pine of good quality with maple and other hardwoods.

Nairne Township, Algoma District. Spanish River. Brûlé with usual second growth, was a pine forest. Small Norway pine on flat in centre.

Gould Township, Algoma District. Mississauga River. A few scattered pine in hardwood in greater part of township. Numerous small swamps with cedar, spruce, balsam and birch.

North Algona Township, Renfrew County. Principally brûlé. Pine cut or burnt, the little left being scattered and inferior. Small patches of hardwood and small swamps with tamarack and cedar.

Forest wealth of Canada.

Fraser Township, Renfrew County. The pine lumbered and burnt.

O'Connor Township, Thunder Bay District. Thickly timbered, the S. three concessions jack pine and poplar, the north birch with occasional spruce, tamarack and cedar. Much burnt land, with dense second growth. A few good-sized pine on W. boundary and W. part of N. boundary.

Gillies Township, Thunder Bay District. Burnt seventy years ago, second growth poplar, birch, spruce, tamarack and jack pine. There are poplar, spruce, and tamarack, 10 to 12 inches diameter, and tall. The jack pine is up to 12 inches diameter, fit for ties, building and some for lumber. Of white pine there are a few of moderate size on Con. 3.

Lybster Township, Thunder Bay District. Same as last, but timber (second growth) smaller.

PROVINCIAL SURVEYORS' REPORTS—CROWN LANDS REPORT, 1886.

Head Township, Renfrew County. E. of Algonquin Park. Pine mostly cut or burnt, some hardwood. Brulé with usual second growth.

Maria Township, Renfrew County. E. of Algonquin Park. Chiefly brulé with second growth.

Broder Township, Nipissing District. Near Sudbury. Mostly burnt—small second growth. A few inferior pine on Concessions 2 and 3, lots 6 and 7, and Concessions 1 and 2, lot 12. Some spruce, tamarack, &c.

Deacon Township, Nipissing District. Algonquin Park. Half, a large amount of valuable pine with hardwood. Half, brulé with second growth.

Dill Township, Nipissing District. Near Sudbury. S.E., mixed timber with good number of red and white pine. N. and W., brulé.

French Township, Nipissing District. Jocko River. S. part in timber berth 233, most pine cut. N. part, scattered pine of good quality. On hills, maple, black birch, balsam, cedar with a few hemlock, ironwood, elm and oak; lowlands spruce, tamarack, cedar, birch, a few ash and elm. N. E. quarter burnt a hundred years ago—scattered stunted timber.

Ermatinger Township, Algoma District. S.W. half, not burnt, chiefly birch, maple, pine (red, white and pitch), spruce and balsam. N.E. half, burnt, but still quite a quantity of green pine standing.

Grassette Township, Algoma District. Mississauga River. Timber scrubby; small balsam, tamarack, cedar, spruce, hemlock and pine; small tracts of hard maple and birch. N. W. portion a few good pines much scattered.

Montgomery Township, Algoma District. Mississauga River. Well timbered. A large belt of good pine on west end of Lake Chiblow and westward three quarters of a mile; west of this more scattered. Around south end of Lake Bernard and a quarter of a mile back, some pine of a fairly good quality. Swamps at intervals with cedar, tamarack, spruce, &c.

Morgan Township, Algoma District. Vermillion River. Excellent pine in large quantities, above medium size, straight and sound. Other timber, balsam, spruce, birch, maple, cedar, tamarack. S. E. and N. E. corners have small patches of brulé, with poplar, birch, spruce, &c.

Otter Township, Algoma District. Mississauga River. N. W. part, brulé with poplar, white birch, &c., and occasional clumps of green hardwood. S. and S. E. parts not burnt, larger timber, maple, black birch, cedar, spruce and pine. The pine has been culled for board timber; some is unsound but some fit for saw-logs.

Base and Meridian Lines, Thunder Bay District. Near Pic Reserve and White River. Ran east 36 miles along Canadian Pacific Railway crossing five times and never distant $2\frac{1}{2}$ miles. At 18 miles ran north 12 miles, and at 24 miles ran north 6 miles to White Lake. Timber, balsam, spruce, tamarack, white birch, a few Norway pines and poplar.

Conmee Township, Thunder Bay District. Kaministiquia River. N.W. and part of north, brulé with small second growth. The rest has large poplar, birch and

spruce, with occasional white pines too few and scattered to be worth more than passing notice.

Marks Township, Thunder Bay District. Kaministiquia River. Burnt 150 years ago. White and yellow birch, spruce, poplar, jack pine, tamarack and balsam thickly grown. The spruce, tamarack and poplar are large. There is an occasional white pine.

North of Rainy Lake and River. Bolger's exploration. Rainy River fertile belt, Lake of Woods to Fort Francis, 60 miles by 15 miles; the timber is chiefly poplar of large size, cedar large enough for telegraph poles and shingle bolts, spruce, tamarack and balsam. Some groves of pine, "but it cannot be called a pine country." There is red and white pine round the N. W. Bay of Rainy Lake and on waters thence to S. E. corner of Lake of the Woods. Between these waters and the North Bay of Rainy Lake there is a considerable quantity of pine but not large, thick groves. N. of Rainy Lake to 49°, eastward to Sand Island River, and on the Seine to Sturgeon Falls there is considerable scattered pine throughout. Fine groves of red and white pine near the Seine, other timber, jack pine, poplar and tamarack.

PROVINCIAL SURVEYORS' REPORTS—CROWN LANDS REPORT, 1887.

Lumsden Township, Algoma District. Vermillion River. Swamp, rock and brûlé. "The timber is of very little importance, but in a small section of the eastern part of the township I found a few scattered pine of fair quality."

Foster Township, Algoma District. Vermillion River. Well timbered throughout, white and red pine of medium size and fair quality. Small patches burnt in N. E. and N. W. corners.

Hyman Township, Algoma District. Spanish River. Timber chiefly pine, spruce, balsam, cedar and birch. Considerable good marketable pine. South of Spanish River rocky, timber burnt, second growth poplar, birch and pine, with patches of good pine.

Edgar Township, Nipissing District. Petawawa River. N. of Petawawa, rocky and timber burnt, except a limited portion towards the W. boundary. South more level; fires left little green timber; second growth poplar and birch.

Anglin Township, Nipissing District. Near Algonquin Park. Fire destroyed all valuable timber except some patches; second growth poplar, cherry, &c. S. of Lake Lavielle stony hardwood land with some good pine. On the whole very little timber of any value left in township.

White Township, Nipissing District. Petawawa River. S. and E. parts almost destitute of timber, sandy plain covered with jack pine, small poplar, whitewood, &c. N. and N. W. parts rough and broken with small poplar, birch, alder, willow, &c. A patch of good land at junction of White Partridge River and Lavielle Creek, west side of river to south boundary, and extends half a mile back, green mixed bush, pine, birch and balsam. Tamarack and spruce in swamps up to 12 inches. Most of the township was burnt twenty years ago.

Garson Township, Nipissing District. N. W. of Lake Nipissing. Red and white pine abundant, also spruce, balsam, tamarack, cedar, maple and birch. Small areas of brûlé at S.E. and S.W. corners.

Dymond Township, Nipissing District. N. of Lake Temiscamingue. Timber throughout township small, chiefly spruce, tamarack, poplar, whitewood, cedar and balsam, with some black birch, elm and soft maple. Northerly part burnt many years ago, and now very little merchantable timber.

Harley Township, Nipissing District. N. of Lake Temiscamingue. Greater part of S. W. quarter, spruce and tamarack swamp. S.E. quarter chiefly spruce and tamarack, with cedar where wet. N.E. corner, spruce, cedar and tamarack swamps. Rest of N. half, higher with poplar and some scattered pine, but not enough for requirements of a settled township.

Brethour Township, Nipissing District. N. of Lake Temiscamingue. Timber chiefly spruce, balsam, tamarack with scattered birch, cedar and poplar along the creeks. Very few pine. N. W. corner brûlé with small second growth.

Forest wealth of Canada.

Bucke Township, Nipissing District. N. of Lake Temiscamingue. Good cedar along Lake Temiscamingue; rest chiefly poplar, whitewood, tamarack, spruce and balsam.

Hilliard Township, Nipissing District. N. of Lake Temiscamingue. S.W. part and part of W. portion a plateau with dense growth of large timber, white pine, birch, poplar, tamarack, spruce and cedar. E. of Blanche River second growth of no commercial value. W. of Blanche River heavily timbered with large and valuable spruce, tamarack, cedar, poplar and white pine.

Harris Township, Nipissing District. N. of Lake Temiscamingue. Timbered with spruce, tamarack, birch, balsam, large cedar and some hard maple, red and white pine.

Casey Township, Nipissing District. N. of Lake Temiscamingue. Mostly spruce and tamarack swamp.

PROVINCIAL SURVEYORS' REPORTS—CROWN LANDS REPORT, 1888.

Hess Township, Algoma District. Spanish River. Greater portion well timbered with good white pine.

Monterief Township, Algoma District. Spanish River. Belt of good pine three miles square in centre and W. of township. Much burnt, with second growth spruce, balsam, pitch pine and white birch.

Algoma and Nipissing boundary. Base and meridian lines. On meridian line 18 miles northward from N. E. angle of Lumsden Township; 1st mile fair old bush, then brulé to 8th mile, chiefly pitch pine, birch and poplar; less than a mile, old bush, then brulé to 14th mile, then old bush to 18th mile, birch, spruce, pine, poplar, maple and cedar. The second brulé is well grown up. Pine is found on large lake at 1st mile, E. of 3rd mile, W. of 4th mile, in green bush 8th and 9th miles, E. and W. of 13th mile, N. of 14th mile. On base line 42 miles westward from district boundary, mostly brulé, some old timber chiefly pitch pine, spruce, tamarack, birch, poplar, and some maple. Pine on first and second miles and northward, on 8th, 9th and 10th miles, a few on 14th mile, more numerous on 18th, 19th, and 20th miles and northward. Southward on Onaping Lake, a large quantity of good pine. Was told at N. end of Onaping Lake country nearly all covered with pine. From 21st to 42nd mile pine all through in large bunches distant from each other. On Pogamasing Lake and lakes crossed to westward, pine in large quantities along the shores and some distance northward.

Chamberlain Township, Nipissing District. N. of Lake Temiscamingue. Brulé with small poplar, birch, alder and cherry. Very little timber of any value left.

Kerns Township, Nipissing District. N. of Lake Temiscamingue. Well covered with timber, chiefly tamarack, spruce, balsam, balm of gilead, cedar and poplar. Some white pine on Con. 2 and 3, lots 9, 10 and 11.

Bronson Township, Nipissing District. On Petawawa River. Much brulé with usual second growth; small pine in patches where protected by lakes, &c.

Dickson Township, Nipissing District. Algonquin Park. E. of Lake Lavielle and Lake Clear, part burnt in strips, part good hardwood with good red and white pine. S. and W. of Lake Clear, good hardwood with some pine. W. and N. parts of township burnt with usual second growth, but some good pine on shores of lakes. Much lumbering, but much valuable timber left.

Armstrong Township, Nipissing District. N. of Lake Temiscamingue. Well timbered, chiefly with tamarack and spruce on high as well as low land, good for lumber. Very few pine and hardly any hardwood.

Ingram Township, Nipissing District. N. of Lake Temiscamingue. Poplar, willow, small tamarack, spruce and balsam, with islands of fair-sized spruce and tamarack throughout. A good grove of pine in the N. E. corner. Looking northward and eastward from hill on the north boundary, a large tract of pine could be seen in the unsurveyed country and appeared very valuable.

Marter Township, Nipissing District. N. of Lake Temiscamingue. Brulé with usual second growth of no market value. Some relics of pine, once plentiful.

Hudson Township, Nipissing District. N. of Lake Temiscamingue. Timber second growth 75 years old, the most valuable being the cypress or pitch pine, 6 to 18 inches diameter, tall and thick. Some remains of the old forest.

Blythe Township, Nipissing District. N. of Lake Nipissing. Timber generally good except on some low lands, where small spruce and tamarack. On uplands, pine, spruce, birch and maple, except 4,000 acres brûlé. Good pine in greater part of township.

Stewart Township, Nipissing District. N. of Lake Nipissing. Pine of good size and quality except brûlé in north. Little hardwood.

Evanturel Township, Nipissing District. N. of Lake Temiscamingue. No good timber; small second growth. Some cedar swamps.

Fitzgerald Township, Nipissing District. Next Algonquin Park. On eastern boundary 6,000 acres good hardwood. In S. W. corner a block of white pine. The rest brûlé with usual second growth.

Thunder Bay and Rainy River District boundary. Base line N. W. angle of Strange Township to Agnes Lake, Hunter's Island. S. from this, meridian line between Thunder Bay and Rainy River District. Some good-sized pine near Waykwahbinonahm Lake, also near Bitchu Lake and on Hunter's Island. Indians said more good pine south of base line. Burnt land, second growth pitch pine, birch and poplar. On unburnt part pitch pine, birch and poplar of good size, fit for mining or fuel purposes. Some good groves of spruce and tamarack.

Lakes west of Arrow Lake, Thunder Bay District. From and including Rose Lake westerly to Gunflint Lake, well timbered with spruce, poplar, birch and balsam. Occasional red and white pine in small belts or scattered, the red more common than the white—useful but not enough to make the land valuable for it alone. Eastern part of Gunflint Lake, westerly and northerly brûlé with poplar, birch and jack pine, as far as Island Portage or Granite River. From this a belt of spruce, poplar and birch, with some red pine 12 to 16 inches, to Seiganagah Lake and along its S. and E. shores. N. shore brûlé to two miles from outlet; S. E. part and some islands, considerable pine from 12 to 20 inches, mostly red. From two miles E. of outlet to Seiganagah Lake considerable red pine with spruce, poplar and birch. Again brûlé on Seiganagah Lake S., S. E. and E.; small second growth. About two miles from E. end, spruce, poplar, birch and jack pine, with increasing proportion of red pine. W. of Angle Lake a belt of red pine. From Seiganagah Lake westward only occasional brûlé with considerable red pine of good size, especially near Big Rock Lake. 210 miles were run.

PROVINCIAL SURVEYORS' REPORTS, CROWN LANDS REPORT, 1889.

Dack Township, Nipissing District. N. of Lake Temiscamingue. Half of township brûlé with poplar, spruce, tamarack, balsam, willow and birch. In green bush tamarack, spruce, balsam, balm of gilead and birch, with a few white pine from 6 to 24 inches.

Robillard Township, Nipissing District. N. of Lake Temiscamingue. Timber, spruce, balsam, tamarack, cedar, birch and pitch pine. Merchantable white pine in southern portion and along Blanche River. A large tract of brûlé across the whole N. portion.

Savard Township, Nipissing District. N. of Lake Temiscamingue. Con. 1, 2 and 3, balsam, spruce, tamarack, poplar, balm of gilead, all large. The rest brûlé, poplar and birch on highlands and tamarack and spruce on lowlands.

Henwood Township, Nipissing District. N. of Lake Temiscamingue. Timber chiefly spruce, tamarack, white birch, whitewood and pine. Rocky ridges in south with pitch pine of no commercial value. East, centre and north, scattered white, red and pitch pine of good quality. Will be the centre of a limit of considerable value.

Notman Township, Nipissing District. N. of Lake Nipissing. Timber, balsam, spruce, tamarack, hemlock, cedar, birch, hard maple and pine. Pine scattered over the whole township of good merchantable quality.

Osborne Township, Nipissing District. N. of Lake Nipissing. Westerly side and south-east corner green. Birch, balsam, tamarack, spruce, with a few scattered pine.

Forest wealth of Canada.

N. W. corner tamarack and spruce swamp, not large trees. The rest brulé with small poplar and cherry.

Hammell Township, Nipissing District. N. of Lake Nipissing. Considerable white pine round most of many lakes and scattered over township, the largest and best in S. E. portion. Blocks of maple and birch almost exclusively. Flats of spruce, tamarack and cedar.

Niven Township, Nipissing District. Adjoins Algonquin Park. S. W. corner (about 4,000 acres) dense growth of white and red pine, average 16 inches, not best quality. Rest old brulé, burnt again bare. In S. E. broken hills on which is springing up a thrifty growth of young pine, white and red.

Beauchamp Township, Nipissing District. N. of Lake Temiscamingue. S. E. part broken by creeks. Balsam, birch, spruce, tamarack and cedar. Lots 1 and 2, Con. 2 and 3, a few pine. S. W. part large pitch pine flat. N. E. part brulé, rocky. Along west boundary, a mile or two miles to eastward a strip of very good pine land.

Marquis Township, Nipissing District. N. of Lake Temiscamingue. Heavy growth of large poplar, spruce, tamarack, birch and balsam, the poplar the largest seen. White pine and cedar scattered in the vicinity of the Blanche River, only enough to be valuable to settlers. Brulé across S. portion extending north-westerly, also N. W. corner; small pitch pine.

Bryce Township, Nipissing District. N. of Lake Temiscamingue. Brulé covered with scrub pine, poplar, birch, balsam and tamarack. A few small cedar swamps. White pine throughout the township, not of much commercial value.

Pacaud Township, Nipissing Township. N. of Lake Temiscamingue. Brulé. All valuable timber gone; second growth balsam, spruce, pitch pine, tamarack, birch and poplar, twenty years old.

Craig Township, Algoma District. Spanish River. Largely brulé. A small area of green timber west of Spanish River; a few excellent pine, with balsam, spruce and birch. Along Spanish River to west for one mile good pine, burnt and being lumbered.

Scoble Township, Thunder Bay District. Pigeon River. Mostly brulé. A few clumps of pine, chiefly Norway. Some clumps of spruce, tamarack and cedar, useful for ties and piles for mines. N. part thick growth of poplar, birch and some spruce suitable for cordwood and pulp.

PROVINCIAL SURVEYORS' REPORTS—CROWN LANDS REPORT, 1890.

Shakespeare Township, Algoma District. Spanish River. Mostly covered with valuable timber, chiefly pine, balsam, spruce, tamarack, cedar, birch and maple. Pine most abundant. Parts of S. E. and S. W. corners burnt over.

Totten Township, Algoma District. Spanish River. Belt on creek $\frac{1}{2}$ to $1\frac{1}{2}$ miles wide timbered with pitch pine, spruce and tamarack. N. E. corner brulé, 3,500 acres. Rest well timbered with good white pine, birch, spruce, cedar, maple, &c. Pine fairly abundant, especially lots 5 and 6, Con. 3, and lots 7 and 8, Con. 4 and 5.

Barron Township, Nipissing District. E. of Algonquin Park. Brulé except small patches of hardwood. Pine timber been good, but lumbering for years has removed all larger timber.

Guthrie Township, Nipissing District. E. of Algonquin Park. S. W. $\frac{1}{4}$ high; white pine, hemlock, birch, maple, beech, cedar and balsam, healthy growth. N. W. $\frac{1}{4}$ and E. $\frac{1}{2}$ brulé. Usual second growth.

Appelby Township, Nipissing District. W. of Lake Nipissing. Larger part brulé. Second growth poplar, birch, willow and alder. A fair quantity of pine along the Veuve River, also oak, soft maple and ash.

Blaine Township, Nipissing District. N. of Lake Temiscamingue. N. $\frac{1}{2}$, greater part timbered with tamarack, spruce, balsam, cedar, poplar, up to 24 inches, but most small. The rest brulé 25 years old. Second growth tamarack, spruce, balsam, pitch pine and poplar.

Charlton Township, Nipissing District. N. of Lake Nipissing. Half old brulé, second growth poplar, birch and spruce, with maple in a few places. The rest spruce,

balsam, birch, tamarack, a little maple and white pine, small and scrubby, except in E. portion. Large pine on lots 1, 2 and 3, Con. 2, 3 and 4.

Cleland Township, Nipissing District. Wahnapiitae River. A large quantity of valuable pine still uncut in the township, also a heavy growth of spruce, birch, tamarack, poplar, balsam and pitch pine. Brulé across the N. W. corner and N. to railway.

Garrow Township, Nipissing District. On Temiscamingue Road. Well timbered. On the highlands, balsam and pine, on the lowlands, spruce, tamarack and cedar. Considerable areas of red and white pine. Brulé in N. W. corner. Small second growth poplar and birch.

Gladman Township, Nipissing District. N. of Lake Nipissing. Thickly wooded throughout with hard and soft wood, only a small strip of brulé three-quarters of a square mile in the N. W. corner. A few large pine at the north and east. Spruce and tamarack swamps across the township north-westerly. Good pine was seen north of the township.

Hawley Township, Nipissing District. N. of Lake Nipissing. Red and white pine, balsam, spruce, tamarack and birch. Very large pine in N.W. corner, the remainder poor. Brulé with second growth poplar, birch, tamarack, spruce and jack pine.

Lockhart Township, Nipissing District. N. of Lake Nipissing. No brulé. The higher portion, the central part of Con. 1, 2 and 3, chiefly maple, birch and balsam; other parts spruce, tamarack, cedar, red and white pine, and pitch pine, a few ash, elm and ironwood.

Lyman Township, Nipissing District. N. of Lake Nipissing. Good pine, principally white, scattered over the greater part of the township. Spruce, tamarack, balsam, cedar, poplar, white and black birch, and maple in order named. A third of the township westerly brulé, second growth poplar, cherry and birch.

Sharpe Township, Nipissing District. N. of Lake Temiscamingue. Timber, poplar, white birch, spruce, tamarack, balsam, pine, cedar, &c. A few scattering white and red pines. Two-thirds of the township brulé, 25 years old. Tamarack fit for piles and ties, spruce, poplar and birch of good size and a little cedar.

Boundary between Rainy Lake and Thunder Bay Districts. Northward on boundary, 120 miles from Sewell's base line; at 12th mile east 4 miles to Moss Township; at 30th mile, west 12 miles to Magnetic Lake. Mostly brulé, 7 to 70 years old, with small second growth birch, poplar, cherry, spruce, pitch pine, &c. Considerable tamarack, and pitch pine fit for ties, especially north of the C.P.R. along English River. A few groves of white pine, but none of any consequence north of the Seine River. More or less pine through the country south of, and around Crooked Pine Lake, and a considerable number of scattering trees in places south of Windigoostigwan Lake.

PROVINCIAL SURVEYORS' REPORTS—CROWN LANDS REPORT, 1891.

Porter Township, Algoma District. N. of Sault Ste. Marie branch. The whole township, (except brulé, 1,000 acres), well timbered with pine, cedar, spruce, maple, birch, hemlock, &c. The pine of good quality, except on rocky lands in the N.W. part, where short and scrubby.

Township outlines on C.P.R. from Pogamasing to Woman River, Algoma District. The greater part brulé. Pine, to an extent worth mentioning, only near Ramsay Station and at Cat Lake, where a considerable quantity of fair size. Near Woman River, some rather small pine.

Fell Township, Nipissing District. N. of Lake Nipissing. S. E. part of N. W. corner brulé. Timber mixed, only medium; some good tamarack and spruce, considerable white birch and poplar; the pine mostly small.

Clancy Township, Nipissing District. Near Algonquin Park. Still a large quantity of white and red pine of commercial value, though long lumbered. The N. part swampy, the rest heavily timbered with mixed wood, black birch, beech, ironwood, hemlock, maple, &c.

Bastedo Township, Nipissing District. N. of Lake Nipissing. A great deal of pine has been taken out and a large quantity still remains. A considerable quantity of good

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spruce; good cedar in the swamps; other timber, white and black birch, balsam and tamarack. Brulé in Con. 3, 4, 5 and 6, with usual second growth.

Gorham Township, Thunder Bay District. Brulé, except a small portion of the N. E. corner and other small scattered patches. Timber small, birch, poplar, balsam, spruce, cedar and tamarack.

Ware Township, Thunder Bay District. Three-fourths brulé, second growth small pitch pine, poplar, birch, alder, hazel, with patches of prairie; green timber spruce, tamarack, cedar, balsam, birch, poplar and pitch pine. No white pine.

Dorion Township, Thunder Bay District. Brulé, second growth poplar, birch, tamarack, spruce, pitch pine, &c., of small marketable value.

Carpenter Township, Rainy River District. Swamps, with small spruce and tamarack, through a large portion of the township. The rest poplar, spruce, balm of gilead, tamarack, birch and balsam. Considerable pine of good quality in small patches scattered throughout the township.

Dobie Township, Rainy River District. A portion consists of spruce swamps, the rest poplar, balm of gilead, spruce, tamarack and balsam.

Base Lines along Seine River, Rainy River District. From the 30th mile on the Thunder Bay boundary 60 miles westward. Mostly brulé, 70 or 80 years old, second growth white birch, poplar, spruce and pitch pine. Some cedar, tamarack and spruce, but not abundant. Principal pine along Seine River from Steep Rock Lake to Sturgeon Falls, fair size, chiefly white; a little pine along the Atikokan, and in places along second and third meridian lines.

PROVINCIAL SURVEYORS' REPORTS—CROWN LANDS REPORT, 1892.

Scadding Township, Nipissing District. N. W. of Lake Nipissing. Well timbered where not burnt. Brulé, with second growth birch, red pine and poplar. In the S. half the pine is mostly cut, but in the N. half, especially in the E. portion, there is a large amount of valuable pine.

Street Township, Nipissing District. N. W. of Lake Nipissing. The west half well timbered with white and red pine, spruce, birch, maple, jack pine, balsam and poplar. The east half brulé; second growth ten or fifteen years old, poplar, birch and jack pine. The greater part of the good pine is on lots 8 to 11, Con. 5, and lots 7 to 11, Con. 6.

MacLennan Township, Nipissing District. N. W. of Lake Nipissing. Timber, pine, balsam, spruce, cedar, birch and tamarack. The pine of fair quality is in considerable abundance.

Falconbridge Township, Nipissing District. N. W. of Lake Nipissing. Timber, pine, cedar, balsam, spruce, tamarack and birch. Pine of good quality has been long lumbered; a fine belt, towards the north and west of the township, is still left.

McLaren Township, Nipissing District. N. of Lake Nipissing. Timber chiefly pine, spruce, tamarack, cedar, birch, poplar, balsam, of fair size and good. Small patches of good pine in the N. E. and S. W., the balance small and scrubby.

Master Township, Nipissing District. Near Algonquin Park. Hemlock, tamarack, spruce, maple, beech, basswood, ironwood, &c. A large area of brulé with poplar, birch, &c. The pine is nearly all removed, having been long lumbered.

Thistle Township, Nipissing District. N. of Lake Nipissing. Timber mixed, pine, spruce, tamarack, cedar, balsam, poplar, white birch, some black birch and sugar maple. A little brulé, a small part of the S. W. corner and along the west boundary. A great deal of good tamarack, spruce and cedar in township.

Vernon Township, Algoma District. Spanish River. Timber, spruce, birch, balsam, white pine and cedar, with some maple. Brulé five lots in the N. W. angle. Belts of good pine of large size run through west part, the rest being small and scrubby. In the eastern portion a thick growth of small white pine.

Bigelow Township, Algoma District. Spanish River. Half brulé, second growth pitch pine, poplar and birch. Only marketable pine in vicinity of E. and S. boundaries.

Dunlop Township, Algoma District. Spanish River. The whole well timbered with tamarack, spruce, birch, balsam, cedar and maple. The pine has been largely lumbered, but some remaining in Con. 5 and 6.

Gough Township, Algoma District. Spanish River. Timber little burnt, only a strip along the south boundary. White spruce, tamarack, cedar and hemlock in large quantities good for ties, &c. The pine is partly cut, but a great deal remains of good quality.

Spohn Township, Rainy River District. On the Lake of the Woods. Largely covered with spruce and tamarack swamps, also cedar. On the higher parts chiefly poplar, balm of gilead, spruce, birch and tamarack. There was considerable pine, but it has been cut, what remains being hollow, stunted and punkey.

Township Outlines, Algoma District. From Woman River to Windermere station. "The timber is that common to this whole northern country, viz.: spruce, tamarack, banksian pine, white birch, balsam, poplar, cedar, &c." Much brulé, with second growth. Much good spruce, banksian pine and tamarack, fit for ties between Woman River and Chapleau. The surveyor says, "We saw not more than two score trees of red or white pine in the whole survey."

Sturgeon Falls to Rainy Lake. Base Outlines. Rainy Lake District. Considerable brulé along the line run, and in the whole country in the vicinity of 49°; second growth white birch, poplar, spruce, tamarack and pitch pine from seven to thirty years old. Considerable spruce, tamarack, cedar and poplar of good size. East of Rainy Lake, rocky and swampy. Along 49° to First Correction line, rocky. South of this, good level land timbered with poplar, spruce, cedar, tamarac, &c.

Lakes in Thunder Bay District. Exploratory survey. Some good pine to S. and E. of Northern Light Rock on Northern Light Lake, extending as far south as main shore north of Eagle Island; the rest around the lake, brulé with small second growth. On the islands, especially Eagle Island, good pine, enough with the mainland for a good limit. On the N.E. shore of Sandy Lake a little good pine, other timber small. North of this some good spruce and tamarack. On Waykwobionan Lake, at E. end and on islands, a small amount of pine; at Sandy Creek good pine in small quantities, also at Shebandowan Lake and Green Water Lake. Round Kashabowie Lake the timber drowned and killed by a dam, and back from shore brulé with small second growth. On islands in the lake a little good pine but not enough for a limit.

PROVINCIAL SURVEYORS' REPORTS—CROWN LANDS REPORTS, 1893.

McCrosen Township, Rainy River District. On Lake of the Woods. The timber consists principally of tamarack, spruce, poplar and cedar; a few scattered red and white pine occur, but not in any quantity.

Pratt Township, Rainy River District. Near Lake of the Woods. This township is mostly swamps. The timber is mostly tamarack and spruce in the swamps; on the high lands, poplar, tamarack, spruce, birch, balsam, balm of gilead, and in the very wet swamp lands the timber is chiefly stunted tamarack and spruce. White pine, in small quantities, is met with in some places, but not in sufficient quantities for a timber berth.

Capreol Township, Nipissing District. On Wahnapiatē Lake. The south half chiefly low and swampy. The timber is chiefly pine, spruce, tamarack, cedar, birch, hard maple and balsam. A large amount of good, fairly large pine was seen throughout the township; in the swamps, the spruce, tamarack and cedar is of a fair size and good, and also the birch and hard maple found on the ridges. The balance of the timber is small and scrubby.

Crerar Township, Nipissing District. On Sturgeon River. Lumbering operations have been carried on in the township for many years, and what timber remains, with the exception of that on the tract of land between the Sturgeon River and the Tamagamingue River, is of little value.

Davis Township, Nipissing District. Near Sturgeon River. Nearly all the township has been burned over in recent years. That part, however, in the north-east corner,

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except along the lake shore, is green bush, as is also a part along the north boundary, for some distance west of the lake. Where burnt over there is an undergrowth of birch, poplar and jack pine on the high land, and alder, cedar and spruce on the low land. The green bush consists of mixed timber, being pine from 15 to 30 inches, birch, white-wood, spruce and tamarack in places, but there is very little marketable timber.

Gibbons Township, Nipissing District. On Sturgeon River. Nearly one-half of the township has been burnt over. Of the remainder, nearly all the pine has been taken off by the lumbermen, spruce, balsam, birch, cedar and tamarack being the remaining timbers, with an occasional maple on the higher lands, and elm along the streams.

Loughrin Township, Nipissing District. Near Sturgeon River. Brulé, dating back about twenty years, covers the entire township, and there is, consequently, no large timber of value. The second growth timber is dense, and consists of jack pine, poplar, spruce, birch and tamarack, amongst which, in some places, numerous dead white pine trees are found.

Norman Township, Nipissing District. On Wahnapiæ Lake. The northern part of the township, from the fourth concession northward, is well timbered, with white and red pine of medium size. The south part is covered with a scrubby growth of spruce, balsam, pitch pine and birch, and some scattered white and red pine of medium size.

Stratton Township, Nipissing District. On Petawawa River. Nearly all this district has been extensively lumbered over for many years, yet there remains a considerable quantity of average and smaller pine trees, scattered over the country, suitable for commercial use, besides an almost inexhaustible quantity of other marketable woods, basswood, maple, spruce, tamarack, &c. There are large areas of brulé or burnt land, frequently covered with a dense growth of young poplar, white birch, willow, cherry, balsam, &c., causing progress through them to be very slow and often difficult.

Tennyson Township, Algoma District. North of Spanish River. The township has been very valuable as a timber limit, but the greater portion of the pine has been cut. The township is very heavily timbered, with the exception of that portion burnt over, and shown on the timber map. Pine, tamarack, spruce, balsam and cedar are the chief timbers, with maple, birch, poplar and hemlock scattered through them.

Township outlines, Algoma District, along Canadian Pacific Railway, from Windermere to Brimmer Station. The timber is that common to the whole of this district, viz, spruce, white birch, tamarack, poplar, balsam, cedar, pitch pine, and occasionally Norway and white pine. The only extent of the last two varieties met with was in townships Nos. 46 and 47, where there appears to be a considerable extent of both red and white pine. I understood from a party who had explored that part of the country that the quality and quantity of the timber improved very much as he went north, and that for twenty miles in that direction considerable pine of both varieties was met with.

Booth Township, Thunder Bay District. On Nepigon River. The face of three-fifths of the township is covered with small mixed scrubby timber, with larch and poplar prevailing. There is a skirting of green bush along the southern and western boundaries, consisting of spruce, tamarac, balsam, birch and poplar, with some sections of very fine spruce timber. Only an occasional white pine was noticed.

Purdom Township, Thunder Bay District. On Nepigon River. The surface of a large portion of the area surveyed is brulé. Still there are some small sections of very good spruce, tamarack, and cedar. Only an occasional white pine was seen.

Rainy River District, base and meridian lines, from near Seine River; north, fifty-four miles on fifth meridian line, to Taché Station, Canadian Pacific Railway; base line, eighteen miles east and thirty miles west, near north end of meridian line. Large tracts of the country have been burnt at various times, but timber of fair size, in tracts of considerable area, is often met with. There is not much pine timber along the lines of survey beyond that which has already been surveyed into limits. The swamps and flat land generally contain spruce, tamarack, and sometimes cedar. Pitch or banksian pine of fair size, fit for railway ties, was sometimes met with. The brulé is generally covered with young poplar, white birch, pitch pine, spruce, cherry, &c., and is often almost impenetrable.

REPORTS OF ONTARIO STIPENDIARY MAGISTRATES.

BORRON'S REPORT on Basin of Hudson's Bay, 1880. Sessional Papers, Part IV, No. 22.

"The territory is naturally divided into three tolerably well defined belts or zones."

(Ont. N. of Height of Land.)

1st. The plateau on the Height of Land remarkable for its lakes." (He thinks it averages 50 or 60 miles in width.)

2nd. The intermediate belt or "steppes," remarkable for its rapids and falls.

3rd. The flat or level country extending from the coast of James' Bay southerly to where the "steppes" of the second or intermediate belt begin." (Width 50 or 60 miles at E. boundary to 200 on W. boundary, at St. Martin's Falls.)

By the Abbitibbi and Moose (Missinaibi or N. Branch). "Timber. The character of the timber begins to change before the Height of Land is reached, other trees taking to some extent the place of pine. There is a falling off also in the size of the timber generally. This is most sudden and therefore most conspicuous a little above the uppermost of the "Fifteen carrying places" or portages about fifteen miles from the N.E. extremity of Lake Temiscamingue. At the lower end of this last portage I observed oak trees eight to ten feet in circumference, and on the portage below this I noticed white pine six to eight feet and red pine five to six feet in circumference. The rock is gneiss, the soil alluvial, and although containing many boulders, seemingly a rich soil. A few miles from this portage, at the outlet of a lake called Mijizowaga, the canoe route leaves the main Ottawa River, which comes from this lake, and our course was northward through a chain of narrow lakes to the Height of Land. The unfavourable change in the nature and size of the timber which thereafter takes place is attributable, I think, rather to some alteration in the soil than in the climate itself. The soil often changes greatly in a few miles, the climate rarely does so. I am satisfied that there are very large areas of country both on the Height of Land and the Ottawa and its tributaries, where from fire or having been cut or both, hardly a pine tree can now be seen, yet capable, so far as soil and climate are concerned, of growing good pine, were these in the meantime not crowded out by other trees, such as aspen, poplar and birch, which are perhaps a little better adapted to a soil recently burnt over or which by their more rapid growth succeed in first getting possession of the ground. The areas which on this side of the Height of Land are either adapted to or in course of adaptation to the growth of pine, and fitted for little else, are in the aggregate so extensive, that although there may be little or no pine in this territory, I am under no apprehension that one of Canada's foremost industries will perish for want of material. Spruce under the name of "fir" is used almost entirely at Moose Factory and other posts in this territory for house building and other purposes. It is tolerably abundant both on the banks of the Abbitibbi and Moose, not in forests or groves, but scattered through the woods. There is some pine about Lake Abbitibbi and also Missinaibi Lake, but it did not appear to be large or in any great quantity. Poplar, aspen, birch, balsam, cedar, tamarack and spruce are the principal forest trees I saw in this territory, and while there is, I believe, amply enough for a numerous population, it is not in the meantime, so far as I am a judge, an inviting field for the lumberman. Under the head of "Climate and Timber," Dr. Bell in his Geological Report for 1877-8, page 25 C, remarks as follows: "The original timber along the lower stretch of Moose River has been mostly burnt within the last fifty or sixty years, but whenever old spruces have escaped they are of a larger growth than those seen on any other part of the route from Michipicoten. In regard to the distribution of the timber, it is a curious fact that small white elms appear below the Long Portage of the Missinaibi branch of the Moose, after having been last seen on the lower parts of the Michipicoten River, near Lake Superior. The northern limit of the white cedar is just south of Rupert's House. At Great Whale River the white birch exists only as a large shrub. The poplars disappear between Fort George and this river. The tamarack is found nearly as far north as the spruce, which is last seen on the coast near the

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northern part of Richmond Gulf. The latter tree is, however, said to extend much farther north at a distance back from the sea." It will be observed that the points named by Dr. Bell are all, with the exception of Rupert's House, a long way north of Moose Factory. The tamarack I saw on the lower stretches of the Moose and Abbittibi River were rarely more than one foot in diameter and far from numerous. The spruce, which as remarked before is the wood chiefly used for boards and scantling, is a good serviceable wood, and I saw trees of it upwards of six feet in circumference. The poplar at Moose Factory is not often more than from four to five feet in circumference. Among the shrubs the willow, the alder and dogwood are most conspicuous." (Pages 27-8.)

Mr. Borron says of the Abbittibi, "The country for a considerable distance below Lake Abbittibi, is seemingly very flat, the banks of the river are so low indeed and so densely wooded with rather stunted and unhealthy looking timber that little can be seen of it." He thinks, "it abounds in marshes and swamps." (Page 17.)

He says of the Moose (Missinaibi branch): "The timber from Moose Factory to the commencement of the plateau of the Height of Land, which I take to be above the upper end of Green Hill Portage, consists principally of aspen, poplar, spruce, balsam, birch, tamarack and cedar. The mountain ash was plentiful the whole way." (Page 19.)

LYON'S REPORT of Lands in Rainy River District, from Hunter's Island, north, to Lake Joseph, westward, 1889. (Sessional Papers, Part IV., No. 22.)

"The whole of the country is covered with timber with the exception of spots where it has been burnt. The timber is chiefly poplar, spruce, oak, elm, basswood, cedar, white pine, red pine, jack pine, tamarack and birch. In some sections the timber is small but usually straight and thrifty. The pine is of medium size and generally sound. Three timber limits bordering on the Lake of the Woods and Rainy Lake have been sold by the Dominion Government. These are estimated to contain 600,000,000 feet of lumber." (Page 44.)

"Pine timber in considerable quantities is to be found in this territory in addition to the timber included in the limits referred to, and is generally situated on the borders of the lakes and streams where it can be readily removed and floated to the point desired to be manufactured. I will not attempt to name the quantity of pine and other timber fit for lumber, but have no hesitation in saying that the quantity is very considerable."

LYON'S REPORT, 1880. (Sessional Papers, Part IV., No. 44.)

"The Government of Minnesota are surveying the country to the south of Rainy Lake and will before long survey the lands on the south shore of Rainy River. When these lands are placed in the market and settled it will be a decided advantage to settlers on the Canadian side of the river. There are large quantities of pine and other valuable timber on Rainy Lake and the American rivers emptying into Rainy River, which must find an outlet by Lake of the Woods and the Canadian Pacific Railway." (Page 56.)

E. B. BORRON'S REPORT on North and West parts of Ontario, 1880. (Sessional Papers, 1881, No. 44.)

"Those who have read the preceding narratives of my explorations this season cannot fail to have perceived that the fertile appearance of the land on the immediate banks of the rivers is very delusive and misleading. Over and over again it must have been noticed that on going inland at those points where on the banks of the rivers the soil and timber presented the most promising appearance, we found that the ground became wetter and wetter, that sphagnum moss covered the surface to a greater and greater depth and that generally in less than half a mile we came to where peat had been formed; that as these peat mosses increased in depth, first the poplar aspen and birch

would give place to spruce, or to what is called in this country juniper, and tamarack; and secondly these last would diminish in size until they were little more than mere shrubs, thinly scattered over the wide spreading surface. Nor were these trees healthy wherever the peat had attained to any considerable thickness. On the contrary they were not only stunted but scrubby and frequently dead. The expeditions I made from Moose Factory, first up the Jag-a-wa River into the heart of the region lying between the Moose and Albany Rivers, and secondly up the Abbittibi River to New Post, through the region lying on the eastern side of Moose River, as well as my explorations along the coast of James' Bay, are conclusive, I think, as to the vast extent of these peat mosses, if not their almost universal prevalence in the flat belt of the country bordering on the southern extremity of James' Bay." (Page vii, 2.)

Mr. Borron, speaking of the land further south, "the belt remarkable for its rapids and falls," as being more adapted for cultivation, says:—

"I am inclined to think, however, that even in this belt there is no inconsiderable quantity of land overspread with swamps and peat mosses, more particularly on the east side of the Abbittibi, in which direction I should not be surprised to find that the peat mosses extended almost unbroken from Hannah Bay on the coast to near Lake Abbittibi."

"I do not know of any part in the Dominion, or indeed in any part of the world where the peat mosses or bogs are nearly so extensive as they appear to be in this basin of the Hudson's Bay. I am strongly of the opinion that not less than ten thousand square miles of the territory belonging to Ontario on the north side of the Height of Land is overlaid by beds of peat the thickness or depth of which often exceeds six feet and will probably be found to be twenty feet or more in many places. Nor is this by any means all, for I have little doubt that there are immense areas also covered with peat on each side of the territory awarded to us." (Page xi.)

By Michipicoten River to Missinaibi River.

Missinaibi River.—Mr. Borron does not mention pine except "a few red pine at Brunswick Lake." Spruce, tamarack, birch, poplar, &c., often mentioned on banks.

Jag-a-wa River.—Country between Moose and Albany Rivers. On banks, poplar, aspen, spruce. On each side sphagnum peat spreading as far as seen from highest trees.

Lower Moose River.—Same timbered banks with peat at back.

Abbittibi River.—Same timbered banks but before he went one quarter of a mile nothing but peat, as far as New Post.

Rupert River, &c.—Same peat moss.

Abbittibi River above Long Portage.—Timber better but still peat at back.

Lake Abbittibi.—A few red pine near outlet.

By Lake Temiscamingue and Montreal River to Lake Tamagaming.

Tamagaming Lake and River.—Good pine, white and red, but much burnt. Back by Lake Nipissing, &c.

BORRON'S EXPLORATIONS of Hudson's Bay Basin, 1881. (Sessional Papers, No. 53, 1882.)

Timber.—In his general report Mr. Borron says:—

"In what has been called, the level clay country, which embraces all of the first plain or plateau and most of the second, the forest is restricted in a great measure to the narrow belt of good soil reported as extending along the margins of the rivers and streams and to the banks of the lakes. The alluvial bottoms on the rivers, and islands both in the rivers and lakes, are generally well clothed with timber. This timber consists of spruce, aspen, poplar, tamarack and white birch chiefly. Of these the spruce is the most valuable, being that which is fittest for sawing into boards and scantling and employed for these purposes by all the Hudson Bay Co.'s posts on James Bay under the name of 'fir.' The largest trees are about seven feet in circumference, but in clearness or freedom from knots, &c., it compares unfavourably with our white or red pine. It is and always will be of great importance and value to the inhabitants of the territory, and although offering no inducements to the lumbermen at present, may yet take its place in the market when the country is opened up and other wood becomes scarce and

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dear. On the upper or southern margin of the second plateau and also on that which constitutes the height of land itself there has at one time been a large quantity of both red and white pine, and at New Flying Post I saw fine pine of both varieties, as also good spruce and tamarack. I measured some of the larger trees and found them to be as follows, about three feet from the ground: White pine, eight feet; red pine, seven feet; spruce, six feet and tamarack six feet in circumference.* On my subsequent trip from Flying Post to Matawagamungue I saw a few white pine trees (survivors of the ancient forest), two of which measured ten and eleven feet respectively in circumference. The amount of pine left by the fires in the neighbourhood of Flying Post I was unable to ascertain, but am satisfied that the quantity is greater and quality better than anywhere else that I have yet seen on the north side of the height of land. But whatever it may be it bears a very small proportion to the forests of pine which have been, temporarily at least, destroyed by fire.

“The quantity of aspen and poplar in this territory is very great, and may, in view of the employment of the pulp of this wood for the manufacture of paper, become extremely valuable. The tamarack too, though much less in quantity (unless we include the diminutive ones found growing on the muskegs) will also be of some value whenever the country is opened up. Tamarack of the size suitable for telegraph poles is very common, and more rarely such as would make railway ties were met with. The largest trees of this kind rarely exceeded six feet in circumference.

“The other woods are of such a nature or are found in such limited quantities or are so scattered as to be of no apparent value with the exception of the white cedar and white birch, more or less of both of which are found from the height of land to within a few miles of James' Bay, and both are of the greatest value to the natives as affording them the best possible materials whereof to build their canoes. There is a variety of pine found very generally on poor sandy or rocky ground, all over the territory, more particularly in the upper or southern portion. It rarely attains a large size, has a scrubby rough bark, few branches, and those near the top; it yields a good deal of resinous gum, and the wood is yellowish and used for nothing that I know of except fuel, for which it answers tolerably well when dry. I have called it in my narrative sometimes pitch pine and at others rough barked pine.”

Sphagnum Peat.—In other parts of his report Mr. Borron expresses his opinion that the peat mosses overspread not only the lower plateau but also “by far the greater part of the belt of the plateau,” between the long portages and the height of land, even extending over and beyond it.

From Missinaibi, across to Flying Post, on branch of Matagami (140 miles).

On the portage route between these two branches Mr. Borron describes the belt of various trees and sphagnum peat behind them with red pine in one spot. Near Flying white and red pine in clumps.

From Flying Post eastward to Matawagamungue, on Matagami (85 miles). Some good timber—still occasional pine.

Down Matagami.—Some pine at starting, then usual timber on banks with peat inland, and this on second plateau above long portage.

Up Albany River.—Poor timber on banks; peat inland. At Chepy River, an Indian said all muskeg to Moose River.

DOMINION SURVEYORS' REPORTS—DEPARTMENT OF INTERIOR REPORT, 1885.

Mr. Fawcett's exploration from Rat Portage along Winnipeg River to English River and up this to Albany River. Timber—poplar, scrub pine, some spruce, &c. At Grassy Narrows some fine pine; the first valuable timber he had seen. On both sides of the river near Lac Seul considerable good pine, like Norway pine. On the banks of the lake, spruce and tamarack. No white pine seen north of the height of land.

* I was informed by Mr. Thomas Moore, the officer in charge of that post, that some sugar maple and black birch trees might be seen growing a few miles from the post, and that he had noticed and measured a white pine that was two fathoms or twelve feet in circumference.

DOMINION SURVEYORS' REPORTS—DEPARTMENT OF INTERIOR REPORT, 1890.

Mr. Ogilvie's exploration from the Ottawa River to Hudson's Bay. No pine beyond Abbittibi; timber scarce.

REPORTS OF GEOLOGICAL SURVEY, 1886. VOL. 2.

Mr. Bell's exploration of Attawapishkat River and Albany River—Lonely Lake to James' Bay. Round Lake St. Joseph the timber greatly destroyed by forest fires from 100 years old to the present time; second growth either aspens or white birch with a few spruce, or wholly banksian pine. Part of the main shore and on many islands not burned there is good timber, viz., white and black spruce, tamarack, aspen, white birch, banksian pine, poplar, balsam, white cedar, &c., in the order named. On Lake Lansdowne, where not burnt, some good spruce and tamarack. On Attawapishkat River, spruce, &c., getting smaller towards the north. On Albany River, spruce, tamarack, banksian pine and cedar, some good but much burnt, with bogs away from river banks. No white pine.

REPORTS OF GEOLOGICAL SURVEY, 1887-8. VOL. 3, II H.

Mr. Ingall's report on Thunder Bay Mining district from 81° to 91° and back from the shore. "The whole region consists for the greater part of a great rocky area covered with bush mostly very dense, while extensive swampy areas are frequent. In places considerable stretches are covered with useful timber, such as maple and pine, but for the greater part the bush is useless except for local demands, such as would arise from mining operations." "The bush which covers the whole district consists mostly of poplar and birch in the lower lands with some intermixed pine, &c., while balsam, spruce and tamarack preponderate in the swampy parts."

REPORTS OF GEOLOGICAL SURVEY, 1887-8. VOL. 3, I F.

Exploration of Rainy Lake region. "It cannot be called a pine country though there is some in spots." Prevailing timber, spruce, cedar, tamarack, balsam and hardwoods.

QUEBEC.

PROVINCIAL SURVEYORS' REPORTS—CROWN LANDS REPORT, 1887.

Radnor Township and Seigniorship of Cap de la Madeleine, Champlain County. Little pine, but spruce, cedar, &c.

Rivers Towachiche, aux Eaux Mortes, &c., Portneuf County. Little pine in two spots. Merchantable spruce, &c.

Musquarro and Kegashka Rivers, Saguenay County. Timber not merchantable size. Lakes and rivers between Batiscan and Metabetchouan, Quebec County. Pine very scarce; white and black spruce.

Rivers Moise and Croche, Quebec County. Good spruce; pine not mentioned.

Rivers Upikauba, aux Ecorces, &c., Chicoutimi County. Merchantable spruce.

River Metabetchouan, Quebec County. Little merchantable timber; no pine.

Between Cedar Lake and Lake St. John, Chicoutimi County. A little spruce, no pine, much brûlé.

Marlow Township, part near River Chaudière, Beauce County. Pine removed; some spruce remains.

Risborough Township, Beauce County. Same as above.

Baskatongue Township, Ottawa County. Little merchantable timber.

Pope Township, Devil's Mountain, Ottawa County. No merchantable pine; some mixed wood.

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McGill Township, Ottawa County. No pine, some mixed wood.
River du Diable, Montcalm County. No pine; good mixed wood.

PROVINCIAL SURVEYORS' REPORTS.—CROWN LANDS REPORT, 1888.

Fabre Township, Pontiac County. Two-thirds burnt; pine gone.
Guigues Township, Pontiac County. Half burnt; some pine left in northern part.
Boisclerc Township, Pontiac County. Western half burnt. Eastern half well timbered, pine being cut.
Bear River and tributaries, Ottawa County. Much pine cut, considerable left, also spruce.
Hincks Township, Ottawa County. Chiefly hardwood; pine exhausted.
Kiamika Township, Ottawa County. Mixed timber; some pine.
Batiscan Seignior, Champlain County. Some spruce, balsam, maple and birch.
River St. Anne, North branch, Portneuf County. Chiefly spruce, fair in parts.
River Metabetchouan, Chicoutimi County. No merchantable timber.
Dallas and Taillon Townships, Chicoutimi County. Chiefly spruce; some red pine; white pine cut.
Kenogane Township, Chicoutimi County. Chiefly spruce and tamarack; some young pine.
Ferland Township, Chicoutimi County. Spruce, birch and poplar.
River St. Marguerite, Saguenay County. Good spruce of merchantable size.
River à la Truite, Saguenay County. Good merchantable timber, chiefly spruce.
River Manitou. Some good spruce.
Tessier Township, Rimouski County. Cleared of merchantable pine and spruce.
Tourelle Township, Gaspé County. Small spruce, balsam and birch.
Rivers Mont Louis, Anse Pleureuse, Pierre and Claude, Gaspé County. Merchantable spruce, balsam and birch in parts.
Port Daniel Township, Bonaventure County. Some spruce, balsam, birch, &c. A little pine to the north.
Coleraine Township, Megantic County. Spruce, balsam, birch, &c., mostly small.

PROVINCIAL SURVEYORS' REPORTS.—CROWN LANDS REPORT, 1889.

Dallas and Dolbeau Townships, Chicoutimi County. Some merchantable spruce, balsam, &c. A little pine.
River Shipshaw, Saguenay County. Some spruce and birch, the best cut.
Rivers Peribonka, Epinettes and Betsiamites, Saguenay County. Spruce and a little pine on Peribonka, little value.
Rivers Croche and Bostonais, Portneuf County. Spruce and birch, a little pine.
Little Batiscan and Blanche Rivers, Portneuf County. Small spruce, balsam and birch.
River Talayarde, Portneuf County. Small balsam, birch, and a little spruce.
Rivers aux Rats, Bellavance and du Milieu, Champlain County. Some fine pine in places; good spruce and hardwood.
Campbell Township (part), Ottawa County. Hemlock, cedar, hardwood. Little pine or spruce.
Moreau and Campbell Townships, Ottawa County. Pine mostly cut, in some spots "some second growth pine which will soon make excellent timber." Good hardwood, spruce, balsam, &c.
Blake Township, Ottawa County. Very fine pine, good spruce, hardwood, &c.
Hincks Township, Ottawa County. Mixed timber, fine pine, spruce, hardwood, &c.
Northfield Township, Ottawa County. Good pine and other timber.
Guiges and Fabre Townships, Pontiac County. Pine cut or burnt. Some spruce and hardwood left.
Gaultier Township, Berthier County. Spruce, birch, cedar, &c.
Gagnon Township, Chicoutimi County. A large quantity of merchantable pine and other timber.

Tourelle Township, Gaspé County. A little merchantable spruce, with balsam and birch.

Little Mecatina River, Labrador. Upper part, well timbered with fair spruce, balsam, tamarack and birch.

PROVINCIAL SURVEYORS' REPORTS—CROWN LANDS REPORT, 1890.

River and Lake Manouan and River Peribonka, Saguenay County. No trees fit for lumber on Manouan; "black fir" on Peribonca.

River Goynish, Saguenay County. No merchantable timber.

Cap Chat Township, Gaspé County. Cedar, fir and birch, some of good size.

Rivers St. Anne and Tourilli, Quebec County. Good merchantable spruce, birch, balsam, &c.; no pine.

River St. Paul or Esquimaux, Labrador. On banks, small spruce, fir, birch, tamarack, for spars or fuel. Moss inland.

PROVINCIAL SURVEYORS' REPORTS—CROWN LANDS REPORT, 1891.

River Nabesipi, Saguenay County. Small spruce, balsam, &c. No commercial value.

Rivers aux Rochers and Moise, Saguenay County. Merchantable spruce, in small quantities in coulées.

Rivers Goynish and Nabesipi, Saguenay County. No wood fit for commerce.

Melherbe Township, County Lake St. John. Good spruce, birch and fir. Only a few pine.

River Casapsal, Matane County. No timber for lumbering, but small quantities of good spruce, cedar, balsam and birch.

Hamilton River, Labrador. The upper part of the river and its tributaries wooded.

PROVINCIAL SURVEYORS' REPORTS—CROWN LANDS REPORT, 1892.

Crespel Township, County of Lake St. John. Spruce, balsam and birch. "Rivers à la Perche, d'Épinette Rouge and aux Rat Musques cross the township, and it is on the sides of these rivers that we find the greatest quantity of merchantable timber."

A second report says there is also pine near the lakes.

Chavigny Township, Portneuf County. Pine mostly cut, but a little left. Good spruce, maple, &c.

Marmier Township, Portneuf County. Abundance of merchantable spruce and birch. Only a little pine.

Alton Township, Portneuf County. Merchantable timber, spruce, hemlock, birch, beech and maple, the hardwood predominating. Spruce cut and destroyed, and hemlock cut for bark and left to rot. No good pine seen; "not in its element."

River aux Tonnerre, Saguenay County. No merchantable timber.

River Magpie, Saguenay County. Eight miles from mouth good and large merchantable spruce.

PROVINCIAL SURVEYORS' REPORTS—CROWN LANDS REPORT, 1893.

River Jupitagon, Saguenay County. Balsam and spruce are the only kinds of timber that one meets with; the trees are about ten inches in diameter.

Lauré and Trudel Townships, in Quebec and Champlain Counties. The principal kinds of woods are fir, spruce, bouleau and birch. They exist in several places in large quantities, sufficient to be utilized as merchantable timber. Mention is also made of a maple sugary on a mountain near the River Jeannotte, as a remarkable fact, on account of there being no maple in any other part of this district.

River Chaloupe, Saguenay County. Balsam, spruce and bouleau, of moderate size, are the only woods that are found on the shores of this river. On the upper part, the wood, chiefly balsam and spruce, is small and only good for fuel.

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Rivers aux Pins and Adam, Saguenay County. The firm of Price Bros. & Co. make use of these two rivers to transport their logs to the River St. Lawrence.

River Petite Cascapédiac, Bonaventure County. "On the East branch, at a short distance from the Forks, and also on the stream called Samarague, I noticed rich spruce groves and very fine pineries. I might have thought myself in the country surrounding the St. Maurice."

Rivers Odili and Consapsigan, tributaries of the St. Maurice. On the Odili, the timber, white spruce, tamarack and bouleau, which is composed of young trees growing on the ashes of an old brulé, is small and of little value. On the River Consapsigan or Jonglerie, the timber, of middling size, is chiefly bouleau, white spruce, tamarack and poplar. There is no cedar.

River St. Paul or des Esquimaux, Saguenay County. There is very little wood on the banks of this river, and it is stunted wood.

River au Bouleau, Saguenay County. The timber, a great part of which is spruce, measures from twelve to twenty inches in diameter.

River Mingan, Saguenay County. There is no merchantable timber along this river. From its mouth, up to a distance of twenty miles, one meets only burnt wood and marshy land; from thence, up to its head, one meets balsam, spruce and bouleau of an inferior quality. Another report says that fire has destroyed all the wood.

Rivers Grande and Petite Bostonnais, and other tributaries of the St. Maurice. On the Petite Bostonnais, lumber camps have been made all over. The young growth of timber consists of pine, spruce and bouleau. On the Grande Bostonnais, the merchantable timber has been cut; the spruce, the bouleau, and a small quantity of pine grow very thick. The streams and Lakes à Dechène and à Shay, offer for timber nearly the same advantages.

Between the River Valin and Lake Moncouche, Chicoutimi County, spruce is in abundance, but the largest trees have been cut down to make saw-logs; the other kinds of timber are fir and bouleau; there are a few pine trees.

Rivers à l'Eau Dorée, à la Truite and Nipissis, Saguenay County. Along the upper section of Rivière à l'Eau Dorée, and also along Rivière à la Truite and the lower section of the River Nipissis, there are large quantities of spruce, fir and bouleau. In the upper section of the Nipissis the wood is more rare and smaller.

Rivers Odili and Consapsigan, Lake Clair and des Iles, tributaries of St. Maurice. On the Consapsigan for 25 miles up, the timber, where the fire has not passed, consists of bouleau, rock pine, fir and black spruce of little value, except for firewood. On the Odili, partly burnt, with groves of greenwood of poor growth, On the River Croche grow bouleau, spruce, fir, birch and elm. Around Lac des Iles, wooded with black spruce and fir. On the discharge of Lac de l'Equerre the timber is fir, spruce, bouleau and birch, with a few cedar trees on the banks of the St. Maurice.

Rivers Etamamion and Darby, Saguenay County. A great part is burnt, leaving only rocks to view. Wood is, however, found at certain places, but this wood is small, consisting of sapin, bouleau and white spruce.

Tom Creek, Bastien Creek, &c., Champlain County. There is a good deal of merchantable wood which has been cut down on a large scale by an American company. Part is burnt with small second growth.

River Pebelognang, tributary of Vermillion River. On the Vermillion near discharge the banks are elevated and rocky, covered with spruce, balsam, bouleau and young rock pine. On Pebelognang the timber is chiefly bouleau, white spruce, red spruce, black spruce, balsam, rock pine and some white pines here and there, with cedar on banks of Lake Sleigh. The country on the S.W. branch of the river and around Lakes Sleigh, Dorval, à Baude and Wekanmekonke is well wooded, containing a good quantity of merchantable wood, such as pine and spruce. Apart from that, fire has made its ravages in several places on the banks of the river some years ago, destroying a large quantity of merchantable timber. The ground is partly covered with a young growth of rock pine and bouleau.

River Du Pin, Bellechasse County. The ranges N.E. and S.W. of the River Du Pin bear maple, birch, bouleau, spruce, cedar and fir; the best spruce and finest cedar have been cut. On the ranges N.E. and S.W. of the village reserve there is very little timber.

River French, tributary of St. Maurice, Champlain County. The kinds of timber which predominate are red pine or cypress, spruce, fir and bouleau. Near the mouth of the French, the spruce is large enough to be advantageously worked; the pine, however, has already been cut down.

Base line, from River Grande Peribonca to River Mistassibi, N. of Lake St. John. As to the merchantable timber which remains now in that district, it is very rare; however, between the Petite Peribonca and the Mistassibi, I met a little spruce and some pine; if one may judge by the section where Mr. J. B. Scott is now working, this region would be advantageous enough for the timber trade.

Bras du Nord of River Ste. Anne, and tributaries, Portneuf County. The timber is all of small dimension and of no merchantable value except as cordwood, with the exception, however, of the silver birch (bouleau) which forms a considerable part of the forest there in some places, the timber being valuable to cabinet-makers. The only variety of the different timber consists in spruce (black and white), fir and silver birch, with a few red and yellow birch occasionally. In some places the spruce, which is all small, is of greater quantity than other kinds of timber, while in other places it is the fir or the silver birch which predominate, the last mentioned timber occupying a much smaller extent of country than the other two kinds.

Bay Lake, Upper Ottawa, Pontiac County. There is an abundance of white pine, red pine and spruce.

GEOLOGICAL SURVEY REPORTS, 1885. VOL. 1.

Mr. Low's exploration of Lake Mistassini, &c. On the Betsiamites or Bersimis River, for forty-five miles up the hills, well wooded with white and black spruce. Bad forest fires. Second growth poplar, white birch, banksian pine and spruce; not large. On Lake Pipmuakin, the shores and hills covered with a fair growth of spruce and birch. Portaged to Manouan River and Lake; small spruce and birch, about half burnt. On Peribonca River, larger spruce, where not burnt. To the height of land, on foot, chiefly swampy, with small black spruce and larch. By the Temiscamie to the Mistassini. On the higher ground at the south end, white spruce, poplar and birch; in the swamps, black spruce and tamarack; on brulé, banksian pine; on Rupert River, small spruce, birch, tamarack, banksian pine, &c. Crossed to Martin branch of Rupert River; the same small timber. Below Lake Memiskow, the timber better to Rupert House.

MANITOBA AND THE TERRITORIES.

FROM THE GEOLOGICAL SURVEY REPORTS, 1886.

Northern Alberta, &c.—Mr. Tyrrell explored the country between 51° and 54° N. latitude, and 110° to 115° 15' W. longitude, an area of 45,000 square miles. The country prairie and partly wooded for the greater part; the area of forest small, viz., the Beaver Hills, and the district stretching south-west from Edmonton, south of the Saskatchewan and west of Pigeon and Battle lakes; there are also small patches in the half wooded area. The forest area is along the western edge of this district with the Beaver Hills as an outlier. On the high sandy ridges spruce and jack pine, between them marshes with small spruce and larch.

Lake Winnipeg to Hudson Bay.—Messrs. Low and J. M. Macoun explored the Berens River, finding small and rough timber: black spruce, banksian pine, tamarack, &c. Round Favourable Lake better timber, white and black spruce, &c., and the same on Sandy and Severn lakes. Down the Severn River similar timber but smaller.

GEOLOGICAL SURVEY REPORTS, 1887-8.

Yukon District, &c.—The Douglas fir, the Engelmann spruce, the hemlock (*Tsuga Mertensiana*) and the gigantic red cedar are not found in the valleys of the Stikeen, the Liard and the Upper Yukon. White and black spruce and the banksian pine are widely

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distributed. The banksian pine is characteristic of the Mackenzie Valley. On the coast north of 54° there is small and less merchantable timber. The red cedar stops at the mouth of the Stikeen and the yellow cedar barely reaches Sitka. Black and white spruce are found throughout the Yukon district in the valleys and on the lowlands; fair to good, suited for construction. On the Stikeen River the flats near the mouth have good spruce and cottonwood. Around Dease Lake the country is wooded but there is little fit for lumber. On Francis Lake there is some good spruce, white and black. On the Upper Liard and its tributaries the timber is mostly small.

Duck and Riding Mountains.—The Duck and Riding Mountains and the country between them and Lakes Winnipegosis and Dauphin have coniferous forest on the summits and the northern and eastern flanks of the mountains. There are belts of hardwood timber on the rivers and scattered groves.

GEOLOGICAL SURVEY REPORTS, 1888-9.

Yukon and Mackenzie Basins.—Mr. McConnell, who explored in this region, says: "The whole country between the Peace and the Athabasca north of the Loon, an area of about 25,000 square miles, is generally forested, mainly with spruce and poplar, and is everywhere characterized by an abundance of lakes and of muskegs and marshes." The Liard valley is wooded with small trees, white spruce, banksian pine and poplar. On the Nelson River (its tributary) for 100 miles up to Fort Nelson the country is well forested, it is said the best grade of timber in the Mackenzie valley. On the Slave River are level plains with extensive forests of white spruce, banksian pine, larch and poplar. From Fort Providence to Lake Bistcho, where it is not muskeg, the country is well wooded with white spruce and banksian pine. On the Mackenzie River from Liard River to the Blackwater River there are spruce forests with lakes and muskegs. To Bear River and Fort Good Hope the spruce is smaller. Near Bear River is a tree-covered plain. To Peel River there are groves of spruce, some of them large.

Porcupine and Pasquia Hills.—Mr. Tyrrell, surveying this country, says: "Portions of the wide plains or valley lying between the Porcupine and Pasquia Mountains are now thickly wooded with large spruce, which if protected from destruction by forest fires, will furnish Manitoba with an abundant supply of timber."

DEPARTMENT OF INTERIOR SURVEYS, 1877.

Third Principal Meridian.—From Fishing to Quill Lake the country was well supplied with wood, some of it merchantable. There was some fair sized timber till the third mile south of the Canadian Pacific Railway, on the rising ground with large poplar. Wood and ponds alternating continued for 27 miles. On the third meridian at the eleventh base line groves of timber abound. From the Touchwood Hills to Carleton there are 24 miles of hilly country, heavily timbered; afterwards little wood except at the Saskatchewan River. From Carleton House to Prince Albert little timber until reaching a heavy belt of spruce and poplar across the neck of land between the north and south branches. Thence to Prince Albert, a fair supply of wood. From Prince Albert to the Indian settlement 104 miles, little timber. To Fort à la Corne, 39 miles, well wooded; thence to Big Hill, 60 miles, with some poplar groves.

DEPARTMENT OF INTERIOR SURVEYS, 1878.

Nelson River.—There is small spruce, tamarack and banksian pine fit for railway ties, &c., and these extend to beyond the Churchill River.

DEPARTMENT OF INTERIOR SURVEYS, 1881.

Lake Winnipegosis.—Prof. Macoun, exploring the country around Lake Winnipegosis and its neighbourhood found large quantities of good timber, spruce, poplar, &c.

DEPARTMENT OF INTERIOR SURVEYS, 1882.

Porcupine Mountain.—In Prof. Macoun's account of his survey of this district, he says: "Valuable spruce and poplar forests are found around every point of Porcupine Mountain." There are also other descriptions of timber.

DEPARTMENT OF INTERIOR SURVEYS, 1886.

Lake Winnipeg.—In Mr. Wilkin's exploratory survey around Lake Winnipeg, he says it is "not much of a lumbering district." He found some spruce.

DEPARTMENT OF INTERIOR SURVEYS, 1892.

Edmonton District.—Mr. Hubbell and other surveyors re-marking the corners of the old surveys in the Edmonton district, found much of the country thickly timbered with poplar interspersed with spruce fit for building purposes, and some for the manufacture of lumber. Good timber, principally spruce, grew in many of the townships adjoining the Saskatchewan and Sturgeon rivers, and easterly from the Egg lakes. Surveyors on the other townships mention places where "a plentiful supply of firewood and building timber can be had," "prairie with willow and poplar bluffs," "well wooded with spruce swamps," "a considerable quantity of timber," &c.

Prince Albert District.—In the Melfort, formerly Stony Creek District, Mr. Ogilvie found willow and poplar, not fit for lumbering, but for fencing and building logs. In Township 43, range 20, west of second meridian, the south half was heavily wooded. Township 43, ranges 16 and 17, had scattered bluffs of small scrubby spruce, the largest area in one block being not more than 240 acres, with 6,000 feet of lumber per acre. There would be about 400 acres in all, with two and a quarter millions of poor lumber. There was said to be good timber in the townships to the north of those surveyed, but much burnt. There was much poplar at the head of Melfort Creek. North of Muskeg Lake there was a lot of good spruce timber, but a small area. Surveyor Belanger found in Township 44, range 17, along the southern boundary, a belt two miles wide of fine poplar with groves of spruce. In some of the other townships there was poplar and scrubby pine.

Peace River and Tributaries.—Mr. Ogilvie in his exploration found in the Athabasca Valley, from the mouth of the Pembina to Fort McMurray, much spruce and some poplar that would make fair lumber. It would be smaller than that used in the eastern provinces, but as good as that in use in the Territories. From Fort McMurray to the lake there was much merchantable spruce, but the stream runs the wrong way, to the northward from the settlements. The timber above Athabasca Landing and Lesser Slave Lake and River, could, he says, be floated to the Landing, whence there would be only 96 miles to carry it to Edmonton. Much of the spruce there was being burnt. On Great Slave Lake and the Lower Peace River, he found much valuable timber, but this also is on Arctic waters, and so, too, with the timber on Great Slave Lake and the Mackenzie River. The timber in the valley of the Liard and the East branch was very large. From the Mackenzie up to the forks of the East branch and the Sicanie Chief River, 450 miles by the stream, there were many and large extents of spruce better than he had seen before in the country. The cottonwood and balsam poplar were also very large. At Fort Nelson was an extensive flat covered with these trees and with spruce. Between Sicanie Chief and Peace rivers, on his track across, he found only fencing timber until nearing the Peace River, where there was larger spruce, poplar and banksian pine. On the Peace River, between the St. John and Snoky rivers, there was some good timber in the bottoms but only enough for a local demand. On the uplands, on both sides, the timber was only fit for fencing. On the road between the Peace River Crossing and the Lesser Slave Lake, the country was covered with bush, but not with much timber fit for lumber, and he supposed it to be a fair sample of the whole district. Around Lesser Slave Lake a large quantity of lumber could be got. He quotes Count de Sainsville as saying of the country around the delta of the Mackenzie that there was no timber of useful size near the coast. On the Cariboo Hill, there was small spruce extending 35

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miles north and south, and 20 miles east and west. North of Great Slave Lake to Back and Big Fish rivers and Beachy Lake, is the barren land, with no merchantable timber.

DEPARTMENT OF INTERIOR SURVEYS, 1893.

Red Deer River, Northern Alberta.—The country comprising Townships 37 and 38, ranges 23 and 24, is rather rough, rolling and hilly, and a great part of it is covered with thick poplar and willow. Considerable quantities of spruce are to be found in clumps, along the Red Deer River, which enters Township 38, range 24, near the south-west corner of the townships and pursues a sinuous course a little north of east and enters the western boundary of Township 38, range 23, near the south west corner of section 7. Large areas of good white poplar are to be found along the eastern boundary of Townships 37 and 38 in range 23.

Edmonton District, Alberta.—The eastern boundary of Townships 53 and 54, range 13, runs for nearly 12 miles through dense timber, chiefly poplar and willow varying in size from 2 to 14 inches in diameter. Much of the timber would make good fencing and in some places it would yield fair building logs. The northern part of Township 54 is more open, with bluffs of small poplar and willow. Township 56, range 13, is thickly covered with poplar, spruce and willow, amply large for building and fencing purposes; there is also a considerable amount of burnt timber. Township 55 is more open with bluffs of poplar and willow scrub, the latter predominating. Township 56, range 12, is generally open country with some small poplar clumps and willow scrub. Township 55 has a little more timber, principally clumps of small second growth poplar and willow, with thick willow scrub. Township 53 is covered with thick poplar and willow, the former varying in size from 3 to 13 inches in diameter. Township 54 is more open with occasional poplar bluffs and willow scrub. Township 56, range 20, is covered with thick heavy poplar, spruce and jack pine, sufficiently large for the manufacture of lumber or for building logs. Township 56, range 21, is covered with heavy spruce and poplar and much windfall. Township 55, range 21, is generally covered with clumps of poplar and willow as well as some spruce. In Township 46, range 25, the parts lying north and west of Bigstone Creek are thickly wooded with poplar, willow and a few bluffs of spruce.

Among Foothills of Rocky Mountains, Southern Alberta.—In Townships 21 and 20, ranges 3 and 4, a considerable amount of brush and some large trees are to be found. In Townships 32 and 33, ranges 5 and 6, there is a good deal of birch and willow scrub in the Red Deer River bottom.

Saskatchewan District from Quill Lakes, north to Pasquia Hills and from Nut Hills west to Humbolt.—The greater portion of the territory was more or less covered with timber and scrub. On 10th base line from Range 8 to 21, the country is described as partly prairie and partly wooded, sometimes with scrub often dense and sometimes with fair timber, spruce, poplar, &c., generally enough for settlers, but not for lumbering operations. On 11th base line from Range 23 eastward to Range 17, the country is described as more hilly, and more wooded, with heavier timber, but with rolling prairie interspersed. This line traverses the Pasquia Hills.

Touchwood Hill District, Saskatchewan.—The subdivision of a number of townships from the northern slope of the Touchwood Hills to the Quill Lakes and Fishing Lake. Townships 32 to 34, ranges 11 to 15, showed a rolling prairie country, interspersed with woodland, sometimes scrub but often fair useful timber, chiefly poplar.

Prince Albert District, Saskatchewan.—In the subdivision of some townships near the forks of the Saskatchewan and on Waterhen Lake, the country is described as prairie land with clumps of scrub and some bluffs of good poplar.

South-east Saskatchewan and North-east Assiniboia.—In outline and correction surveys of some townships between Beaver and Nut Hill, the Quill Lakes and the Assiniboia River, the country was mostly prairie, interspersed with woodlands mostly scrub but with some good spruce and poplar.

Townships 21 and 22, range 15, west of the principal meridian.—In Township 22, the available timber is not so abundant as in that to the south of it; but there is on most sections, especially adjoining the streams, some good sized poplar with a

sprinkling of tamarack and spruce, enough for all settlers' purposes. The red willow, which makes excellent firewood, is also abundant. Township 21 consists of stretches of open land interspersed with bluffs or belts of timber. This is generally poplar, often of size suitable for building, with some large spruce and tamarack, though not enough for lumbering. Much fallen timber resulting from fires is met with, which, with what is standing, makes fuel abundant. A large proportion of the timber, which covers some one-third of the surface of this district, is good sized poplar fit for building, with some large tamarack and spruce, though not in sufficient quantities nor suitably placed for lumbering.

BRITISH COLUMBIA.

DEPARTMENT OF INTERIOR SURVEYS, 1885.

The Railway Belt.—Mr. Higginson, reporting on the railway belt in British Columbia, 40 miles wide and 500 miles long from the summit of the Rocky Mountains to the Pacific coast, estimated the timber at 3,000,000,000 feet b.m. Douglas pine, spruce, hemlock and cedar were all good, but the cedar often hollow. The timber existed principally in the valleys, along the lake and on the slopes, extending from the creeks and rivers, the largest being nearest the coast on the north arm of Burrard Inlet, the Pitt, Stave, Lilloet and Harrison rivers and lakes. In the east the largest body of timber in one place was on the eastward slope of the Selkirk Mountains along the Columbia River.

DEPARTMENT OF INTERIOR SURVEYS, 1892.

The Railway Belt.—Mr. Drewry reported that along the Illecillewaet and Incommapleax rivers there was considerable valuable timber, that on the former river being under license and consisting of fir, spruce, hemlock and cedar. On the Incommapleax River, from Battle Creek down there was a large quantity of large cedar with a smaller quantity of scattered pine (*P. ponderosa*).

DEPARTMENT OF INTERIOR SURVEYS, 1893.

Kamloops and New Westminster Districts, Railway Belt.—The surveyed portion of Township 4, range 30, west of the 6th meridian is flat and heavily timbered. The mountains to the left of the Salmon River valley, are sparsely wooded and thickly covered with grass; the mountains to the right are heavily wooded and with little or no grass. The land surveyed in part of Townships 4 and 5, range 27, west of the 6th meridian, is heavily timbered. Townships 3 and 4, range 5, west of the 7th meridian, are wet and heavily timbered. The land surveyed in Township 20, range 10, west of the 6th meridian, is fairly timbered with fir, cedar and spruce, which is now being utilized for ties and other purposes. In Townships 20 and 21, range 9, west of 6th meridian, from the mouth of Canoe Creek at Shuswap Lake, for two miles up the creek, the land is heavily timbered with cedar, fir and tamarack of splendid quality and enormous size.

REPORTS OF THE GEOLOGICAL SURVEY, 1885, VOL. 1.

Rocky Mountains, Southern.—Mr. Dawson surveying between 49° (the International Boundary) and 51° 30' a district 50 miles wide and 200 miles long, found the commonest timber to be black pine and Engelmann spruce with Douglas fir in the lower valleys. In the Flathead valley was black pine and poplar, and the same on Mist Creek. In the Kootenay valley there were Douglas fir, spruce, &c. In the Elk River valley was much good spruce. There was good timber in the Vermillion valley.

REPORTS OF THE GEOLOGICAL SURVEY, 1886, VOL. 2.

Northern Vancouver Island.—Mr. Dawson reported that Texada Island was generally wooded, but not densely, with very fair timber in the valleys; bare, rocky hillsides were frequent. In the vicinity of Hardy Bay, southward from Beaver Harbour, were

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considerable tracts of low level land, heavily timbered. On Quotsino Sound, were tracts of low land, wide valleys and low rounded hills, with good timber in very considerable quantities ; on the upper part of the sound there was Douglas fir, but not on the outer coast. On the coast of British Columbia and Vancouver Island, along the actual shore lines and on the rocky and mountainous tracks the timber was somewhat inferior ; in the level inland regions and in the sheltered valleys were great quantities of fine trees, with an almost unlimited amount of timber. The Douglas fir was abundant on the inner shores of Vancouver Island and the adjacent mainland, but not on the northern extremity of the island or the west coast. The yellow cypress was further north. Over the whole area there were western hemlock, western cedar, Menzies' spruce, western scrub pine and yew.

REPORTS OF GEOLOGICAL SURVEY, 1886-7, VOL. 3, PART 2.

Rocky Mountain Ranges.—Mr. Dawson reported of the Rocky Mountains proper :—
“Some of the valleys penetrating this range on the east are lightly timbered, or in part prairie-like in character, but as a rule, the mountains are thickly wooded wherever sufficient soil exists for the support of trees, and owing to the greater rainfall on the western slopes of the range, the forests are there often very dense.” The valley between this and the next range he described as 700 miles long. Of the Gold Range, under various names he reported : “The forests of the Pursell, Selkirk and Columbia ranges are dense and tangled and even less perfectly explored than the corresponding portion of the Rocky Mountains.” On the great interior plateau, he found, in the southern portion, much open country, but he said, to the north, with increasing moisture it becomes generally forested. Of the Coast Range, a continuation of the United States Cascades, he reported :—
“The mountains as a rule are densely forested and extremely rugged, the flora of their seaward slopes being that characteristic of the west coast, and co-ordinate with great humidity, while on the north-eastern flanks, the forest resembles that of the inland ranges.

REPORTS OF THE GEOLOGICAL SURVEY, 1888-9, VOL. IV.

West Kootenay District.—The timber line is about 7,000 feet, the woods being open and park-like above 5,000 feet, the rocky or exposed slopes above this level, as well as many broad mountain tops, being almost destitute of trees. Elsewhere the country is generally wooded, and in the lower and more sheltered valleys there is much good timber. The Columbia valley as well as the slopes of the mountains are well wooded with spruce, cedar, cottonwood, &c. In the Kootenay valley and on its slopes is some good timber.

NEW BRUNSWICK.

REPORTS OF THE GEOLOGICAL SURVEY, 1885, VOL. I.

Northern District. On the Silurian deposits, on the high, dry land, were found white spruce, balsam, fir, white and red pine, &c. ; on the swampy ground, white and black spruce, &c. ; on the hardwood ridges, birch, maple and beech, with a few spruce. In the crystalline belt, hemlock, spruce, white and red pine were common ; hardwood ridges were rare. Along the Bay of Fundy, little timber was left.

REPORTS OF THE GEOLOGICAL SURVEY, 1886, VOL. II.

Northern New Brunswick and S.E. Quebec.—Mr. Chalmers found on the drier parts of the Silurian upland, white spruce, black birch, rock maple, white and yellow birch, with some red and white pine ; on the lower ground and swamps, cedar, larch and the spruces ; on the river banks and intervalles, elms, spruce, cedar, &c., with some red pine. The region drained by the Upper Restigouche and its tributaries has a heavy growth of spruce, birch, maple, &c. On the carboniferous formation in addition to these, hemlock is found.

Parts of Northumberland, Victoria and Restigouche.—On the pre Cambrian area there is a thick growth of black spruce. The white and red pine are exhausted.

REPORTS OF GEOLOGICAL SURVEY, 1886-7, VOL. 3, PART II.

Lake Temiscouata.—Messrs. Bailey and McInnes, in their account of their survey, say: "The whole of the country east of Lake Temiscouata and much of that west of it is still in forest and is the seat of important lumbering operations.

N.E. District.—Mr. Chalmers in his survey found hemlock, black and white spruce, birch, maple, beach, poplar, white and red pine, &c., on the high ground, and cedar, larch, ash, elm, &c., in the swamps. The country was much burnt by the great Miramichi fire of 1825, and there is a second growth of poplar, &c., but there is red pine and black spruce on the sand and gravel, and white spruce on the dry river banks, with a growth of 12 to 15 inches since the fire.

REPORTS OF THE GEOLOGICAL SURVEY, 1888-9, VOL. IV.

Southern portion.—Mr. Chalmers, in his survey, found that Charlotte County, St. John's County, and the parts of King's and Queen's counties south-west of the St. John River, were mostly occupied by the original forest, spruce, pine, hemlock, cedar, &c. In St. John's County, hardly any forest, except the east part of St. Martin parish—black spruce, pine, &c., and this extends into Albert County, as far as Shepody River. In King's County, the hilly tract south-east of the Intercolonial Railway, there is nearly the same forest, but more maple. In King's and Westmoreland counties, west of the Intercolonial, there is the same timber, but thinned out. On the carboniferous area in Queen's, Westmoreland, and Sudbury counties there is black spruce, hemlock and cedar. In the northern part of Queen's, King's and Sudbury counties there is the original forest growth, except where burnt.

COMMISSION ON NEW BRUNSWICK CROWN TIMBER LANDS, 1892.

Renous and Dungarvon Rivers.—"The timber covering a large tract of land on the upper waters of these rivers, is virgin timber, to a large extent, and it has reached an age in which it is not only gaining nothing, but deteriorating. It should, therefore, be cut and marketed. If that were done, it would relieve other tracts which are now overcut, and give time for the young growth upon them to mature."

Upper Restigouche.—"We have ascertained from the testimony before us that there is an unsurveyed tract of 1,800,000 acres in the Upper Restigouche district, which is believed to be well spruced and a fine cedar country."

North Shore.—"The cedar supply of Maine is now very inadequate to the growing demand of the United States market. As we have in this province, and especially on the North Shore, the best cedar areas of the country, we believe that its value should be more fully recognized than it now is."

NOVA SCOTIA.

REPORTS OF THE GEOLOGICAL SURVEY, 1886, VOL. 2.

Antigonish, Guysborough and Pictou Counties.—On Isaac Harbour River, there is good hardwood between the upper part and Lawlor's Lake and towards Country Harbour and westward, with barren tracts of granite. A large quantity of ton timber is shipped to England, chiefly from Guysboro' Harbour, but the woods of the greater portion of the country are small and barely supply the local demand for lumber. Pine is exported, square and in logs, as well as oak, tamarack, birch and maple.

Guysborough and Halifax Counties.—Extensive fires have destroyed the forests along the shore, and in many places, far inland. A large dense forest, affording good ship timber, is still found on the head waters of the rivers New Harbour, Isaac Harbour, Indian, Liscomb, Ecum Secum, Moses, Quoddy, Salmon and Sheet Harbour, and lumbering is still carried on extensively on Sheet Harbour, Moses and Liscomb rivers.

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APPENDIX "C."

STATEMENTS OF EXPERTS ON FOREST AREA.

In 1887 Hon. Mr. Joly made a report to the Hon. Minister of Agriculture, Ottawa, on the Forests of Canada.

A few extracts from his report will suffice to show his views of the extent of our forests.

He set forth the difficulty of an inquiry which had for its object to calculate the contents of growing forests scattered over half a continent, from the Atlantic to the Pacific.

"Let us try and make an inventory of the timber resources of the Dominion beginning in the west. On the Pacific shores of the Dominion, in British Columbia the bountiful gifts of Providence are still stored up for us and the forests have been scarcely attacked by the lumberman. From the Rocky Mountains to the province of Ontario there are scattered here and there certain tracts of well timbered land, but they are the exception. That timber will be required for the local wants of the people who are now beginning to settle our fertile prairies, and it will never, I think, contribute to swell the bulk of our timber exports.

"The great forest of Canada *par excellence*, is spread over that vast territory watered by the Ottawa, the St. Maurice, the Saguenay, and their tributaries, over one hundred thousand square miles in extent. Before drawing your attention to it, I will mention our remaining timber limits that cannot compare with it either for size or resources. They are found in the Georgian Bay country; the Muskoka and Nipissing regions; the Eastern Townships of Quebec and south shore of the St. Lawrence to the gulf; the region on the north shore of the St. Lawrence, from the Saguenay to the Bersiamis, and perhaps still lower down as far as Mingan; and the country watered by the St. John, the Miramichi, the Restigouche, and their tributaries. These timber limits in many places are scattered and isolated; they have with few exceptions (such as the Bersiamis at the east and some newly discovered pine tracts at the west on Lake Superior) been worked for a long time and cannot be expected to supply much longer any considerable quantity of first quality pine, but they still contain an immense quantity of spruce, principally in the east, sufficient for a great many years' supply if carefully worked and protected. I will now return to the great Canadian forest, our great pine country with its wonderful network of streams and its three great arteries, the Ottawa, the St. Maurice and the Saguenay. Does it begin to show signs of exhaustion? Look at the map of that great region and you will see how little of it is now left untouched. On the Ontario side all the most accessible tributaries of the Ottawa—the Madawaska, the Bonnechere, the Mississippi, the Petewawa and others, have been worked for years. The lumbermen are now round the eastern end of Lake Nipissing with the Matawan for an outlet that can only be reached by a land road; they are still much further north on the shores of the Montreal River.

"On the Quebec side they have nearly reached the head-waters of all the great tributaries of the Ottawa, the Rivière Rouge, the Rivière du Lièvre, the Gatineau, with the Jean de Terre and Lake Kakibonka and the Lac des Rapides. They are now working 300 miles higher up the Ottawa, as the river runs, on Lake Temiscamingue and the Kippewa.

"On the St. Maurice they are as far up as Lake Manouan on the western side of the river. Its great tributaries on the eastern side, the Bostonnais and the Rivière Croche, have been deprived of the greater part of their fine pine; it is now sought at the head-waters of those rivers.

As for the Saguenay region it still contains a good deal of spruce, but there is only a limited extent of pine still untouched, or nearly so, south of Lake St. John, between

the Metabetchouan and the head-waters of the Rivière Croche, near Commissioners Lake and Bouchette's Lake. There is a little pine left north of Lake St. John and a certain quantity on the river Shipsha and in the lower Saguenay on the Ste. Marguerite and Petit St. Jean, &c. As for the large rivers that flow into Lake St. Jean—the Chamouchoua, Mistassine and Peribonca, the pine that was on the lower part of these rivers has been nearly all cut and the remainder of their course, from their distant northern sources, is through an immense burnt up wilderness where the vegetable soil has been consumed by fire.

“That huge tract of lumber country between the Ottawa and the St. Maurice, that separated (or rather appeared to separate) the lumbermen working on those two rivers by what seemed an inexhaustible and endless forest—that huge tract is tapped through and through, and the Ottawa lumberman has met the St. Maurice lumberman on the shores of Lake Manouan.”

Mr. Joly concludes his run through the great Canadian forest with the following statement:—

“In a very short time since the beginning of the century we have overrun our forests, picking out the finest pine, and we have impoverished them to a serious extent, and what makes it worse impoverished the country too, for owing to the force of circumstances, which we shall consider later, our timber export trade has not given Canada such a return as she had a right to expect. There still remains to us a great deal of spruce and second rate pine, which for generations to come will be in excess of our local wants if we are careful; but the really fine pine required to keep up our great timber export trade to its present standard is getting very scarce and inaccessible, and I fear that we must prepare for a sudden and considerable falling off.”

In 1876 Mr. James Little prepared a pamphlet on the timber supply question. He considered that “British Columbia had a good supply of a description of pine which differs considerably from our white pine, with other commercial wood; but whether much or little, it is so far away that it would be much cheaper to freight supplies from the north of Europe than from that province. It may be utilized to some extent when there is a railway to move it to the Saskatchewan Valley. North-east of the Rocky Mountains there is some timber on the rivers of the wild north land which discharge into the ocean, but it is also too far away to be of any account to us here in the east.”

“Next comes the province of Manitoba without any supply of timber except what little may be found on the Canadian portion of the Red River, around the Lake of the Woods and other patches of but small account in a country almost all prairie.”

“Next comes the rocky barren district north of Lake Superior and bounding the province of Ottawa on its north-west extremity. This province, the province of Ontario, was not long since a magnificent forest country, probably unsurpassed on the face of the globe in its wealth of timber, and especially that of the best description of white pine in which it abounded. That section drained by the streams which empty Lakes Huron, St. Clair and Erie was exceedingly rich in the commercial woods of pine, oak, walnut, ash, elm and white wood. They are now all but gone; hardly any can now be seen west of the northern railway which runs from Toronto to Collingwood on Georgian Bay.

“The Muskoka country on Georgian Bay, which was only a few years ago opened up to settlement, is undergoing the same rapid process of denudation incident to all new timber settlements. The hardwood timber is being burnt up to make way for the plough and the pine is fast disappearing under the stroke of the axe for the insatiable saw-mill. That section, with all the streams emptying into Georgian Bay up to Sault Ste. Marie, does not hold as much pine as is got out in a single season in Michigan alone. In fact it would be a wise measure, if it could be enforced, to compel the whole province west of the water-shed of the Ottawa to preserve the little timber now remaining for its own use.

“We now reach the valley of the Ottawa which is the only pine timber we have worth giving a moment's consideration to in discussing the question of supply, and yet, from the information I have obtained on the subject from those whose lives have been mostly spent in the territory, I have every reason to conclude that at the rate of consumption going on a single decade will be sufficient time to totally exhaust its resources.

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"The valley of the St. Lawrence from Montreal to the Gulf never had a great amount of pine timber on it. The St. Maurice held more than the whole territory beside, and that river has been undergoing a course of depletion for so many years that I feel safe in saying it would not now afford enough to supply the whole consumption of the State of New York for a single year.

"I would now offer a few remarks regarding our spruce supply, a description of wood which ranks next to that of pine in the amount of consumption, and enters into competition with the lower grades of that product to a very considerable extent. The supply of this timber this side of British Columbia is confined chiefly to the valley of the St. Lawrence below Montreal, the Eastern Townships, Nova Scotia and New Brunswick. The Eastern Townships have been run over to a large extent for both local consumption and foreign demand. Every stream in it has been ransacked for the saw-mills in the interior, on the river, and at Quebec, and there is not now much left convenient to the floating streams, and especially in the St. Francis district, outside the lands held in fee by private parties. On the north shore of the St. Lawrence the spruce is exhausted for many miles back and is now all held under license from the Government of the province, as is also the whole region below Quebec, hardly a stream of which but has extensive mills on it, and from all appearance this description of timber will be as short-lived in this province as the white pine.

"Nova Scotia is also making rapid progress in ridding her soil of its wood encumbrance, and with regard to New Brunswick, which manufactures more spruce deals than are shipped at Quebec of both pine and spruce, and appears determined to get rid of her timber at any sacrifice, she cannot, if the press of that province informs us correctly on the subject, have any great supply now left. The *St. John Telegraph*, the leading paper of the province, gives us an idea of the state of matters there. It says that, 'the increasing scarcity of the timber adjacent to the sea and the navigable rivers has, within a few years, become a subject of great moment to the inhabitants of the province. Until recently, some of our people have been accustomed to look upon our pine and spruce trees as an encumbrance to the land and unworthy the cost of protection. The public, however, think differently now, since they find that one-half of the best timbered lands have been destroyed, while nine-tenths of the remainder have been worked on so much that they have been largely deprived of their most valuable soft woods.' And yet we find in the face of this condition of the timber resources of the province, after having stripped it of its immense amount of most valuable pine timber, they are slaughtering away at what is left of their spruce and throwing it on the English markets at auction, to such an extent as not to realize for it more than it should now be worth standing in the forest.

"An article in a recent issue of the *London Timber Trades Journal*, mentions a sale of 300 acres of timber, grown by the Earl of Cawdor on the mountains of Scotland, which brought £16,000 sterling, about \$80,000, and that after it had undergone repeated thinnings, which realized large additional sums, and I will venture to say that there are not 300 acres of the timber which the lumbermen of New Brunswick are now recklessly throwing away, but what would be worth as much in five years time, if left untouched.

"In five years, neither pine timber, nor pine or spruce deals, except it be some of the best clear pine, which is indispensable for many purposes to the people of Britain, and for which they will have to pay excessive prices, will be shipped from the port of Quebec.

"In five years, lumber will be higher on this side of the Atlantic, with the above exception, than it is now or will then be in Great Britain.

"In five years, I look for lumber to be shipped from the Ottawa to supply Michigan and the Prairie States of the West, and in a dozen of years from now the commercial woods of the United States and Canada, this side of the Pacific Slope, will have totally vanished, and instead of running abroad to find markets on which to force and sacrifice the products of our forests, we will be running abroad to see where we can purchase supplies for our home consumption, and the shipping, which is now engaged in carrying away our timber and lumber, will be required to freight supplies to us from wherever they can be found."

The Select Standing Committee on Immigration and Colonization of the Federal Parliament of Canada, in 1878, heard some evidence on the "Timber Interests." Mr. Stewart Thayne, in answer to the question put by Mr. Trow, Chairman—"Can you form an estimate of how long the present supply of timber is likely to last, supposing the present consumption, exportation and waste continue?" said: "I should not like to commit myself to a definite opinion upon such a subject; 1st. Because I cannot find any data sufficiently reliable to guide me to a safe conclusion on so important a matter. 2nd. Any calculation that would ignore the quantity of young timber standing in the woods, but which may become available in the course of twenty or thirty years, would rest on an unsound basis; and 3rd. Because there are so many sections of timber-producing land in these provinces, which though not extensive when considered separately, still form in the aggregate no mean source of supply, and which though now lost sight of, would soon be opened up provided a profitable demand should spring up. Having made this statement to show why I decline to draw any hard and fast line as to the extent of the supply, I feel bound to say that every test I have applied to ascertain the quantity of merchantable timber actually standing in any section of the country has convinced me that the resources available are much smaller than public opinion supposes them, particularly of those woods adapted to the export trade."

Mr. A. T. Drummond, in 1879, discussed the distribution and preservation of Canadian timber trees in the report of the Montreal Horticultural Society for that year. Respecting the pines, he said: "The white and red pines are, however, the trees in which centre perhaps the most interest. Pitch pine is of mere local occurrence, and the banksian pine, though abundant in the Lake Superior region eastward to the Lower St. Lawrence, and of merchantable size, according to Professor Robert Bell, along the southern branch of the Albany River, is in the more accessible sections only a scrubby tree. In the Province of Quebec, south of the St. Lawrence, little pine is now left, though thirty years ago large lumbering operations were carried on in the country lying south of Quebec, and east of Sherbrooke. In the Ontario peninsula as well, pine is now scarce, and even what there is of it is of small size. Large as this territory is in which the white and red pine are found, the extensive sections of the country now left quite destitute of pine warn us that these forests are not co-extensive with our annual requisitions on them. At the present time the St. Lawrence and the Ottawa valleys furnish the largest part of the pine lumber. Very nearly as much is annually cut on the St. Lawrence and its tributaries below Montreal as in the Ottawa Valley, but contrary to the general impression, and to the customs returns, very nearly two-thirds of the square timber and the lumber manufactured on the Upper Ottawa is, as Mr. A. J. Russell has pointed out to me, from the Ontario forests. Some conception of the abundance of these trees in these valleys, and also of the enormous requisitions annually made by lumbermen upon our pine forests, is shown by the fact already referred to, that during the years 1870-71 and 1872 the average number of logs banked upon the small streams tributary to the St. Lawrence and Ottawa was over 5,250,000 annually."

In 1882 the American Forestry Congress was held in the city of Montreal. Mr. G. L. Marler, a high authority, read a paper on "The Denudation of our Forests."

He said: "The province of Quebec is the principal territory from whence the mercantile lumber is drawn. There are two large belts of timber lands in the province, one on the south side of the St. Lawrence; the other and the greater on the north side.

"The first extends from Gaspé, on the Bay des Chaleur, which divides it from New Brunswick, thence along the high lands on the boundary line until it strikes the head-water of the Connecticut River, thence along the line of 45th degree north latitude to the St. Lawrence, by which it is bounded in front. This belt consists of about 30,000 square miles.

"The other extends from below the Saguenay to the Ottawa, and thence 200 miles north of the St. Lawrence, and consists of about 120,000 square miles.

"Until a few years back these great belts of timber land were reached only by streams running through them, and could only be devastated by the lumbermen a few miles each side of these rivers, leaving large spaces untouched by the woodman's axe. But since twenty years this great belt (the southern) has been intersected by some

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dozen railways cutting up the land like a checker-board, and by this means we must look forward that by another ten years this belt will be entirely denuded of all kinds of timber.

“The northern belt is now passing through the same phase as the sister belt. The rivers on the north shore are not so numerous as on the south side of the St. Lawrence, but they are of greater magnitude, and extend further into the interior. Like the other belt this one is also being cut across by railways.”

The following are extracts from a lecture delivered in Montreal by Mr. J. K. Ward, on 10th December, 1883 :—

“It is estimated from statistics derived from Government returns and other sources that I have access to, as well as having some personal knowledge of the business, that there is manufactured annually in the Dominion, east of the Rocky Mountains, lumber and timber approximating to 2,600,000,000 feet, board measure, composed of hewn timber and sawn lumber, railway ties, cedar, round and flatted timber. * * *

“I have divided the whole product of the provinces about as follows :—

“Ontario furnishes 4,474,000 pieces, equal to 2,600,000 standard pine logs of 200 feet each, producing 520,000,000 feet of lumber ; 6,790,000 cubic feet of white and red pine or 81,000,000 feet b.m. ; dimension timber, 23,000,000 feet b.m. ; hardwood. cedar, &c., equal to 5,000,000 feet, making in the aggregate 635,500,000 feet b.m. paying to the Provincial Government for timber dues \$501,000, and ground rents \$46,000, with 18,000 square miles under license.

“Quebec has under license 48,500 square miles, producing 2,500,000 pine logs, equal to 386,000,000 feet b.m. and 1,308,000 spruce logs producing 106,000,000 feet b.m. ; white and red pine timber, 3,110,000 cubic feet, equal to 37,320,000 feet b.m. ; hardwood, 51,000 cubic feet, or 611,000 feet b.m. ; railroad ties 143,000 pieces, 32 feet each, making 4,576,000 feet b.m. ; cedar equal to 4,500,000 feet ; pine and spruce round timber 5,760,000 feet b.m. ; tamarack, 175,000 feet B.M. ; hemlock, 34,000 feet ; cordwood equal to 5,000,000 feet, making in all 549,976,000 feet, giving a gross revenue of \$668,596 to the Province.

“New Brunswick, cut on Government lands, equal to 160,000,000 feet of all classes, principally spruce, the pine in this province, once so famed, being almost exhausted. There being a large extent of private lands in this province, I think it is safe to estimate that there is not less than 500,000,000 feet of lumber and timber produced, considerably more than three-fourths of which is exported ; the balance being for home use. The extent of territory is 17,500,000 acres, 10 millions of which is granted and located, leaving 7½ millions still vacant, giving to the province a revenue of \$152,000 for timber dues, ground rent, &c.

“Nova Scotia is estimated to produce about 250,000,000 feet, of which about \$1,500,000 worth is exported, this province furnishing a large quantity of birch and maple.

“Manitoba and North-west Territories produce, say, 75,000,000 feet.

“These figures give us a total of 2,010,476,000 feet.

“The difference between this total and 2,600,000,000 is made up by the products of private lands, principally in New Brunswick and Eastern Townships of Quebec, and including also the output of scores, if not hundreds, of small mills scattered through the country, known only in their own localities. Of the total there is about three-fifths exported, realizing \$24,000,000.

“As to the extent of territory on which these lumbering operations are carried on, there are in the three provinces of Quebec, Ontario and New Brunswick 75,500 square miles under license, besides about 7,000 square miles owned by private parties in these three provinces and Nova Scotia, the whole being equal to 52,800,000 acres. This however is not all the timbered territory from which we have to draw our future supplies. The older provinces of the Dominion embrace an area of about 360,000 square miles, which after deducting the territory under license, leaves an area of 270,000 square miles or 180,000,000 acres. Only a small proportion comparatively of this is occupied for agricultural purposes, thus leaving a very large extent of territory on which no doubt there are vast quantities of timber, not only for export but for home purposes. I have no doubt whatever but that more than half of the whole of this territory is unfit for

settlement and will remain, for ages as bushland. This bushland in a sanitary point of view will be useful in attracting the rains, holding back the water in its natural beds, so preventing sudden rises and falls in the rivers, which often cause much damage by overflowing lands, as well as loss by excessive drought, so that many streams that once afforded good water powers are now useless as such.

“In coming back to the question of the extent of timbered territory from which we are to draw our future supplies of merchantable lumber, you can hardly meet with two lumbermen who will correspond in their opinions. It is extremely problematical as to the average quantity of lumber which a given area will yield. I have seen five, ten or even twenty thousand feet come off an acre, and have heard of as much as fifty thousand; but this I consider as very rare. It has been estimated that our timber territory in Ontario and Quebec would yield from one to two thousand feet per acre, which I consider not an unreasonable estimate. It would therefore be fair to adopt the medium estimate of fifteen hundred feet per acre, which would give, at the present rate of production, a thirty-seven years' supply. This in addition to a very large extent of territory not under license, would, it is reasonable to suppose, yield enough to make fifty years' supply, as stated in my paper read before the Forestry Congress. This calculation refers exclusively to pine, spruce and hardwoods, in which our country abounds, that heretofore have been comparatively neglected, and will as pine grows scarce, become more used for finishing purposes. As years pass by and the timber increasing in size, the territory cut over by the lumbermen, who in the past took nothing but the choicest, will be found to contain a large quantity of material that will be considered valuable.

“As to providing against loss by forest fires, we may reasonably hope that they will be less frequent than in the past, and that the natural increase in size, will, as some argue, make up for the loss occasioned by them. It may seem strange that to produce the annual output of wood goods, supposing the average yield per acre is 1,500 feet, it requires 1,700,000 acres to be gone over, or equal to an area sixteen times that of the Island of Montreal.

“Before closing this part of the subject, I would refer to that portion of my paper referred to, in which I remarked that to the uninitiated travelling through the woods he would hardly know that the shantymen had been there, except for seeing an occasional stump, a few chips, or the top of a tree. This may require a little explanation. In my experience of nearly forty years' lumbering it has been my fortune to work mostly in what is called a hardwood country, where the best pine is usually found in very scattered quantities. But where in a few cases I have worked in what is known as a green country, where pine mostly prevails, it has generally proved so faulty that but a small proportion of the whole was considered merchantable, so that the country, to a casual observer, looking from a distance, appears to be covered with timber.”

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APPENDIX "D."

FOREST PRESERVATION.

ROCKLAND, ONT., 14th February, 1894.

The Honourable

The Commissioner of Crown Lands,
Quebec.

SIR,—I have had several interviews with the Assistant Commissioner relative to the preservation of the forests of the province of Quebec, and have also made two or three attempts to have an interview with yourself on the same subject, but without success. The last time I sought an interview with you was two weeks ago when in Quebec, but unhappily, I found you were ill and confined to your house. I had, however, a long interview with Mr. Taché, and he finally requested me to address you, putting my ideas in writing, which I shall now endeavour to do.

The preservation of the forests from the devastations of fire is alike most important to the province and to the limit holders, and the judicious and careful cutting of the timber upon the limits is also very important to the province, if perhaps, not so fully important to the operators of to-day.

I shall first endeavour to deal with the former question, that is, the preservation of the forests, and I shall deal more particularly with the portion of the province with which I am most familiar, viz., that portion drained by the tributaries of the Ottawa, from the Long Sault Rapids at Grenville to the head of Lake Temiscamingue, and I take it, that the conditions here are a fair sample of existing conditions all over the province. Before the advent of the settler and the lumberman this district of country was immensely rich in pine, and to a lesser extent in spruce, cedar, hemlock and other woods. For the last sixty years or more, and perhaps more particularly for the past thirty or forty years, the lumberman's axe has been busily engaged in cutting down the pine trees and converting them into an article of commerce, with the result of yielding to the province a large annual revenue, furnishing an article for foreign export, which has contributed largely towards paying for our foreign imports, and at the same time has given very large employment to labour, and furnishing a large home market for our farmers' produce; with the result to the operators themselves, that the great bulk of them have been unsuccessful, and either retired from the trade penniless or died poor men. Comparatively few have been fairly successful, and a very limited number, after a long struggle for many years, may be termed as having been really successful.

Had no other factor appeared, I think it is safe to say that the present rate of production might go on for many decades to come, and I think I might say for some ages to come, for I firmly believe that considering the natural growth, with no other instrumentality of removal or destruction than the lumberman's axe, the percentage of the depletion of the pine forests would even to-day be almost imperceptible, and the final exhaustion would be many years in the future, but how many it would be very difficult to calculate. I think, however, it would be quite safe to say from one hundred to two hundred years.

With this asset, as it might and would be to-day, but for one factor, the province could complacently look upon its present unhappy debt, as it would have nothing to fear, but alas, this factor, viz., fire, has worked the most serious destruction in the forests of the province. I think I am safe within bounds when I say, that in the region of country with which I am dealing twenty times as much merchantable timber has been destroyed by fire

as has been cut and taken away by the lumbermen, to say nothing of the young and under-sized pine destroyed at the same time, for fire destroys indiscriminately, while the judicious lumberman preserves the young and growing pine for future use. Adding to the quantity already mentioned the young pine, and the loss through fire is alarmingly increased. I will not undertake to say that this enormous loss could be wholly averted, but I can safely say that it could have been very largely averted.

The sources of these unhappy bush fires are not very numerous, and by far the greatest source is illegitimate settlement and squatting upon the limits. It is quite safe to say, that the loss to the province from this source reaches hundreds of millions of dollars. In a lesser degree, there is the danger from fishermen and hunting and camping parties, the clearing of lumber farms, from the lumbermen's drives, and from lightning. The Indian may possibly be responsible for some fires, but they are few and far between I am sure. In my own experience I have never known a case, known or supposed to have originated from this source. I know of two or three burnings that cannot be accounted for in any other way than from lightning, but these must be few, as rain almost always accompanies lightning, but in any case this is the lesser of all the dangers and one that cannot be very well guarded against. All the others, however, can be guarded against, and beginning with the first and most important danger, I hope you will pardon me for saying that no efficient remedy has yet been applied. A few years ago a charge called "fire tax" was introduced, but I am perfectly candid in saying that I know of no results whatever, excepting the payment of the charge. I have never seen or heard of a fire ranger anywhere on any limits that we or any other lumbermen possess.

And if you will allow me to offer my suggestions for the remedy, they are as follows :

In the first place I would allow no surveys or laying out of townships whatever in timbered districts, and more especially where such districts are unfitted for settlement. In the next place I would allow no squatting whatever on limits excepting as approved jointly by the Commissioner of Crown Lands and the holders of limits, and only where such are required for stopping places for the actual necessities of the lumbermen. If this is done, by far the greatest danger will be removed, but I will go further and would suggest the organization of brigades of fire rangers over the entire province; the brigades to be greater or smaller according to the values to be guarded, and the possible dangers surrounding the several situations to be so guarded. The whole grand system of organization is one that would require a good deal of consideration and arrangement of detail, and it would be difficult to enter into a discussion of the whole subject through correspondence. Whether you would appoint one general head for the whole province, and district heads under him, is a matter for your own consideration, and possibly you might think well of consulting the lumbermen on this point. But to come down to narrower limits, I will take for discussion the Gatineau district. The Gilmours and ourselves are the largest holders of limits on that river. Now it is a great question in my mind, whether there should be two organizations dealing with this district separately, or whether there should be one organization dealing with the whole. There are some grounds for and against each scheme, and this is a matter that should be considered carefully, but on general principles I would divide the territory into districts with one chief ranger over each district with a sufficient number of men under each to keep a close guard on all settled districts contiguous to the limits, to guard all roads leading to and through the limits, and in fact, to guard in every way against the setting of fire, and to put out fires if unfortunately such occur. Of course the organization would have to be empowered to call help when such is required and is obtainable.

I would suggest that the fire rangers be named by the lumbermen and appointed by the Commissioner of Crown Lands, the Crown and the lumbermen each to contribute one-half the payment of their salaries. An important matter would be the appointment of wise and judicious men, who would create a good feeling among the settlers and impress upon them the great and important truth, that the preservation of the forests and the continuance of the lumber trade is their salvation from two sources, viz., in supplying them with both work and markets for their produce, and also in averting to as late a day as possible direct taxation, which must surely come when the revenue from the forests ceases altogether or is lessened very much. The nature of the season would

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always have some influence on the number of men required, a generally rainy season would call for a less number of guardians than a generally dry season, but this matter could easily be regulated according to the necessities.

Coming now to the minor dangers. It is a great question in my mind as to the wisdom of leasing lakes for fishing purposes. I, myself, would prefer that it should not be done, as I consider it a source of danger, but certainly gunning, excepting by Indians, should be prohibited on the limits, so far as it is possible, during any very dry season, and far better if camping parties and fishermen could be kept off also. As to lumbermen's farms, great losses have occurred in some instances in years gone by in clearing same, but this danger I think is largely past, the interest of the lumbermen themselves will provide against further danger from this source. But the last danger I mentioned, viz., lumbermen's drives, is a great source of danger and should be carefully guarded against. The plan we have adopted ourselves is this: on each drive going through a wooded country, we appoint a careful and reliable man, whose only duty it is to watch and guard against the starting fires. His duty is to walk up and down the ground being operated upon, and see to it that fires do not start from smoking or from any other source, also to guard the camp fire, and remain behind as the camping party move forward, and see that no seed for starting a forest fire is left behind. This system, or something similar, should I think, be put in force over the entire province.

Now I will refer to the second question I mentioned in beginning this letter, viz., that of the careful cutting of the limits, and in dealing with this question I wish also to include the matter of saving the young pine as well as other timber. Now the conditions in the region of country with which I am dealing, and which I take it is a sample of the conditions all over the province, are these: fire has destroyed the greater portion of the thickly pine timbered country. With the exception of very narrow areas the lumbermen have gone over the balance and have cut the better portion of the timber, and what is now left for the province and the operating lumbermen of to-day, is the remaining large pine of generally more inferior quality and also the small growing pine, and the other woods such as spruce, hemlock, ash, basswood, &c., which if not possessing commercial value to-day, will at the same time, be of value in the not very remote future, if preserved from fire. As to operating, my view is that the conditions and regulations should be such as to make it an object for the lumbermen to cut in the most careful and economical way, wasting nothing that can be turned to any profitable account whatever, and save and preserve the young timber, and in every way strive to preserve the life of our forests and the lumber industry.

It is too true that hundreds of millions of dollars worth of assets of the province have vanished in smoke, and it is also true, that a very few years more of similar conditions will see the end of the lumber trade and nearly all revenue from same. Untold value has been lost to the province, and the percentage of forest wealth remaining is comparatively small. At the same time under careful and judicious management the value of what remains can be much enhanced and its life very greatly prolonged, and to accomplish this the Department of Crown Lands and the lumbermen must join hands, all party and political differences must vanish, and no other sentiments prevail than those of patriotism towards the province, and the preservation of the lumber trade. The position is alike a most serious one for the province and the lumbermen. In very many instances to-day the bulk of the possessions of the lumbermen is the young growing pine and other woods on their limits, and it is largely to this source the province will have to look for revenue for near approaching years, and the preservation not only of the young pine forests, but of all green forest country is one of the utmost importance, for as the pine becomes exhausted, other woods will come in, and bad as the conditions are to-day, at the same time a large revenue, extending over many years to come, can be saved for the province if the necessary precautions are carried out.

Another serious source of loss to the province and at the same time a great wrong to limit holders, is a practice which is continually going on, of buying lots in surveyed townships ostensibly for settlement, but really for the purpose of securing at nominal cost the standing timber. For instance, in our case, all the limits we hold are old limits, which were very greatly cut over before coming into our possession. In buying we were

influenced in the price paid, in nearly every purchase, by the quantity of other timber apart from pine on the limits, but we find that we are pursued both on the North Nation River and the Gatineau by men who are robbing both the Crown and ourselves, by buying up lots at nominal prices on which we have paid ground rent for years, doing us out of our just rights, and at the same time getting quantities of timber from the Crown for comparatively nothing. Fire, and this system are the great enemies of the province and the license holders, and they are two evils which in the best and truest interest of the province require immediate and most efficient remedy.

Finally, let me say that I am sorry to have troubled you with this long letter. My only excuse is that I am thoroughly in earnest in this matter, and desire to lay my views before you as fully as correspondence will permit. I have stated only what I know to be true. It makes my heart sore every time I go up the Gatineau River, to witness the devastation by fire in what was once a grand pine country, and also to drive through the young forests of young pine growing vigorously, but at the same time, only growing, and awaiting similar destruction. I cannot think that any written or verbal statement can fully impress the importance of this matter upon you. Nothing would be so useful as to see the real conditions with your own eyes, and I will make this proposition. If you will come with me for a few days, and make a short tour of the Gatineau district, I will take you round comfortably, and I will give you a practical illustration of the truth of every word I have stated. Such a trip would be most useful to yourself, and of the greatest possible value to the province. Mr. Andrew Thompson of Quebec, I think, would consent to join us if you will make the trip.

Again apologizing for this very long letter,

I have the honour to be, sir,

Your obedient servant,

(Sgd.) W. C. EDWARDS.

APPENDIX "E"

FISHERIES AND FOREST.

OTTAWA, 27th January, 1894.

GEO. JOHNSON, Esq., Statistician, &c.

DEAR SIR,—Your letter to hand of the 11th instant, asking information on the question, "What influence has the denudation of the forest upon river fisheries?" You draw my attention to a conversation we had of a passing character on this subject, on which we both agreed, that the effect of the denudation of the forests produced injurious influence upon river fisheries.

On this subject I am fully confirmed in my belief, after many years of observation and experience, that the cutting away of the forests is not only injurious, but also brings about the extermination of many descriptions of fish, especially those of the higher order, such as belong to the salmon family.

Many rivers and streams that were teeming with fish of the salmon and trout species when the country was in its primeval state, or at the time of the first settlement of the country, have now become almost depleted of these better kinds, brought about by the effects of clearing off the forests and bringing the land under cultivation for cereal and farming purposes generally.

The causes for this loss of fish-life are many. The cutting down of the forests and opening up of the country generally decreases the rainfall, which in a large measure becomes absorbed into the cleared and arable lands, thus reducing the volume of water which originally fed the streams. The cutting away of the forests also gives increased strength to the sun's rays upon this reduced flow of water, causing a much higher

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temperature to what it was when in the normal state; thus making the streams unsuitable, and unhealthy for the trout and other fish at first indigenous to them, and these streams are now partially replaced with several species of the lower order, such as catfish, sunfish, perch, pike and others of a kindred nature, the better kinds of fish by this higher temperature of water having been driven from their natural habitat, they cannot exist in it.

Again, the clearing away of the forests, while it may be generally advancing agricultural pursuits, nevertheless acts in the reverse way with the fish cultural products; the refuse and other foul matter, from barnyards and turnpike roads, together with the sewage and drainage and noxious matter from saw-mills and manufactories, all leading into these streams, make them as it were public drains instead of the channels of pure liquid water which they were before this transition of the forests took place. All these injurious results combined, produced from the cutting away of the forests, have in many cases and in many particular localities so changed the streams from their original standard as to make them quite unsuitable for the habitation of the more valuable kinds of fish, and in many cases have brought about a total extermination of fish-life, (from their once numerous abodes) originally provided by nature for man's food and comfort.

There are many other evil results in addition to those mentioned. All these with the so-called onward march of progress to supply the sordid wants of men irrespective of consequences for the future, have brought about this sad state of things, and raised a problem which will be found very difficult to solve.

I am, yours respectfully,

(Sgd.) SAM. WILMOT,
General Supt. F. C.

APPENDIX "F."

LOWERING OF LAKE ONTARIO.

An interesting paper was read at the Canadian Institute on Saturday evening, 10th February, 1894, by Mr. Kivas Tully, C.E., on "The Fluctuations of Lake Ontario," being a continuation of a former paper read at the Canadian Institute on the 22nd March, 1879, making a total period of forty years. As the survey of the great lakes has been completed by the United States, Mr. Tully was enabled to give accurate information as to the watershed, water surface and levels of the lakes, which could only be considered approximate in the former paper, though procured from the best authorities. The great decrease of nearly three inches in the average rain and snowfalls in the last fifteen years, as compared with the previous twenty-five years, was ascribed to the destruction of the forests, without much attempt to replace them by planting trees. The decrease in the average snowfall is corroborated by the decrease of more than three inches in the mean average level of Lake Ontario, for the last fifteen years. These decreases were substantiated by the records of the Meteorological Observatory for the past fifty years, which show a diminution of 2.602 inches, the figures being 36.940 inches as the mean of seventeen years in 1858, and 34.338 inches mean of fifty years in 1891. These facts deserve the serious consideration of the whole community, particularly the farming portion, as a diminution of rainfall means a decrease in the fertilising of the soil.—(Toronto *Empire*, 13th February, 1894.)

APPENDIX "G."

UNITED STATES CONSUMPTION OF WOOD.

(From Bulletin No. 10, Forestry Division, United States Department of Agriculture.)

According to estimates based upon census and other figures, the United States use 22,000,000,000 cubic feet of wood annually. Of this enormous amount (about 350 cubic feet per capita), over 4,000,000,000 cubic feet of the best timber are made into lumber (between 30,000,000,000 and 40,000,000,000 feet board measure). Railroad construction requires about 500,000,000 cubic feet, and fencing takes an equal amount; but by far the largest consumption is for firewood. An uncertain amount is burned up every year in forest fires which rage over the western mountain country especially, and which swell the total consumption, probably, to beyond 25,000,000,000 cubic feet annually. During the last three decades an increase of about thirty per cent in consumption, for each decade, is indicated. The area covered with wood growth is less than 500,000,000 acres. If all the land area not known to be treeless or in farms, were under forest, the acreage would not exceed 850,000,000 acres, but the lower figure is, probably, more nearly correct.

From the careful statistics of the German Government and from the records of private forests, we know that the annual growth of wood per acre and year, does not average more than fifty-five cubic feet, though, under favourable conditions, it may rise to double that amount with some species. In this yield are included branches and smaller dimensions, down to three inches diameter, which are not used in the United States. If we refer only to the production of such sizes as are used in the United States, their timber at the age of 125 years would be found to have grown at least not more than thirty-five cubic feet per acre annually. The present acreage of the United States, therefore, even if well stocked and well managed, could not produce the annual consumption. But we know that much of it is badly stocked, occupied with poor timber and not cared for. The United States are, therefore, consuming much more than the area reproduces, probably double this amount, and with every year the disproportion grows. Were we to assume that 10,000 feet board measure is now standing on every acre of the whole forest area—an extravagant estimate even with the enormous stumpage of the Pacific coast forests—the area of the United States could not supply their needs for much more than over 100 years, the time it takes to produce a good sized saw-log. Most of the timber now being cut is over 200 years old. The probabilities are that the end will be visible much sooner. For the white pine, the end—speaking relatively, not absolutely—is now in sight, and the same is true for walnut, yellow poplar and ash.

B. E. FERNOW,
Division of Forestry.

APPENDIX "H."

EUROPEAN FORESTS.

The table* of the areas of European forests has been prepared from the latest available information, chiefly from returns obtained, expressly for this report, by the Foreign Secretary, Lord Rosebery, from the British representatives in the different countries.

In Germany, France and Austria, their example being followed by Switzerland, Italy, Roumania and others countries, the public forests, and to a great extent those belonging to private owners, are cultivated as carefully and scientifically as a well managed farm. Only the annual crop is consumed, the forest not being destroyed but maintained in perpetuity. To utilize the yearly growth and equalize the supply the most approved plan is to divide the forest into compartments, each with trees of ages differing

* See Statistical Table 3a.

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from the others, so that in succession they are ready to be cut. At the time of felling, some standard trees are left to seed and to shelter the young seedlings, which thus take their place in the rotation, any gaps being filled by planting if necessary. The general plan thus briefly sketched is of course subject to modification from various causes, duly considered by the trained forest officers. Another plan, called *jardnage*, is to select each year and cut a certain number of the mature trees in a forest of all ages, taking care not to injure the growing timber, and that young trees, seeded or planted shall fill the place of those cut. Some such method must be adopted at first even when the division into compartments is aimed at ultimately. About twenty-five per cent of the area of the country thus treated as cultivated woodland is able to supply the wants of the dense population of European countries while conserving the forests. In France, Germany, Austria, Italy, Switzerland and some other countries, even private owners are not allowed to cut their forests without the sanction of the authorities, nor without replanting, especially on the sources of streams, on hills where the soil is liable to be washed away, or in places where protection is needed against avalanches, &c.

In some other European countries such as Norway, Sweden, and till lately northern Russia, such cultivation and conservation of the forests is not at all or little practised, the forest being depleted for local use and for exportation as on this continent.

In view of the statement often heard that our pine forests could not be thus treated so as to maintain them undestroyed, it is interesting, and instructive to note the proportion of coniferous forests in European countries where scientific forestry is successfully practised.

PROPORTION OF CONIFEROUS FOREST.

COUNTRY.	Coniferous.	Deciduous.
	per cent.	per cent.
Austria.....	72	28
Hungary.....	22	78
Belgium.....	33	67
France.....	33	67
German Empire.....	67	33
Holland.....	40	60
Italy.....	31	69

The forest statistics of some of the subdivisions of the Austrian and German Empires show this large proportion of coniferous trees even more forcibly. Bohemia has 82 per cent pine, 12 per cent mixed, and 6 per cent hardwood. Prussia has 67 per cent coniferous; Saxony, 86 per cent; Hesse, 39 per cent, and Wurtemberg, 58 per cent, with 9 per cent of mixed forest. The skilled foresters of Europe find no more difficulty in preserving and perpetuating these coniferous forests (largely pine), while obtaining a yearly supply from them, than in the case of hardwood forests.

The table of forest areas in other parts of the world shows that some of the British colonies and dependencies are paying attention to the preservation and reproduction of their forests. In India such a system has long been established and conducted with great success by an able staff of forest officers, who had at first to obtain their training at the forestry schools of France and Germany, but such an institution is now in existence in England. In Australasia and South Africa the Governments have also recognized, as will be seen, the necessity for the conservation and extension of their forests.

GERMANY.

Germany stands in the first rank of the countries practicing scientific forestry. The administration and methods differ somewhat in the various States composing the Empire, but the Kingdom of Prussia may be taken as indicative of the general practice. The principles on which the management of the State forest rests is thus stated by Donner, the Oberland fürstmeister or Chief of the Forest Service :—

“The fundamental rules for the management of State forest are these: first, to keep rigidly within the bounds of conservative treatment; and second, to attain, consistently with such treatment the greatest output of most useful products in the shortest time.

“The State believes itself bound, in the administration of its forests, to keep in view the common good of the people, and that as well with respect to the lasting satisfaction of the demand for timber and other forest produce, as to the numerous other purposes which the forest serves. It holds fast the duty to treat the Government woodlands as a trust held for the nation as a whole, to the end that it may enjoy for the present the highest satisfaction of its needs for forest produce and the protection which the forest gives, and for all future time, at least an equal share of equal blessings.

“The forest is a trust handed down from former times, whose value lies not only in its immediate production of wood, but also essentially in the benefit to agriculture of its immediate influence on climate, weather, protection in various ways, the conservation of the soil, &c. The forest has significance not only for the present, nor for its owner alone; it has significance as well for the future and for the whole of the people.”

Another authority says of Prussia:—

“It has therefore steadily refused to deliver its forests to more or less speedy destruction by allowing them to pass into the hands of shorter lived and less provident owners. Even in the times of greatest financial difficulty, when Prussia was overrun and nearly annihilated by the French, the idea of selling the State forests was never seriously entertained.”

The organization of the Prussian Forest Service is as follows: It is under the Ministry of Agriculture, State Lands and Forests, having for its immediate head the Oberland fürstmeister or Chief of the Forest Service. In the central office is the Bureau of Forest Surveys and Working Plans, which is charged with the formation of ranges, each under the charge of an executive officer, their subdivision into blocks, and a further division into compartments; with the surveying and estimating of the forests and the timber; the determination of the yield that may properly be utilized; and the construction of the working plans revised at intervals of five and ten years.

Over each of the thirty five divisions there is a council to control the forest business within its sphere, the Oberförstmeister and Förstmeister being members. They inspect the 680 Oberförsters, who are charged with the actual management.

The training of the forest officers is as follows: After graduating from a gymnasium, there is a year of practical work under an Oberförster, then two years at a forest school, followed by a year of jurisprudence and political economy at a university. The examination, if successful, is followed by two years of travel and work. Five months of this must be spent in the practical administration of a range under an Oberförster, four months in the preparation of working plans, and six months in discharge of all the duties of an ordinary forest guard. Then follows the final examination, which having passed, he becomes a forest assessor, in due time to become an Oberförster, with the control of a range of some 10,000 acres.

Subordinate to these officers and under their direction are the various grades of forest guards who do the actual work of protection, planting, felling, &c., and who are also thoroughly trained and tested.

In the other portions of the Empire the State forests are under much the same system. There is more difference as to the next class of forest property, that of the municipalities and other public bodies. In all, however, improvident and wasteful methods in the treatment of these forests is absolutely prevented, and they are under the control of the State forest officers.

Even private forest owners are subject to the intervention of the State, dangerous deforestation being prevented, especially in the case of what are termed “protection forests.” Where the owner is unwilling to suffer these restrictions the State will buy him out.

GRAND DUCHY OF HESSE.

Date.	Country.	Per cent.	Forest lands, acres.	State or Crown, acres.	Communal, &c., acres.	Private, acres.
1887.....	Hesse, G. D	32	612,663	170,895	234,599	207,169

Forest wealth of Canada.

There is a thoroughly organized forest staff, supervising private as well as public forests.

Private forests cannot be uprooted without ministerial approval.

High or regular forests are $86\frac{1}{2}$ per cent. low and medium growth $13\frac{1}{2}$ per cent. Coniferous forest, 39 per cent.—U. S. Con. Rep., Vol. 25, 1888, page 1.

*REVENUE AND EXPENDITURE OF STATE FORESTS.

Countries.	Forest Area.	Total Expenditure.	REVENUE.		EXPENDITURE PER ACRE.							Net Revenue per acre.
			Gross.	Net.	Total.	Percent of gross revenue.	Administration & protection.	Marketing crops.	Cultivation.	Roads.		
											\$	
Prussia.....	6,000,000	8,000,000	14,900,000	6,000,000	1.33	58	0.48	0.30	0.14	0.06	0.96	
Bavaria.....	2,300,000	3,150,000	5,880,000	2,730,000	1.37	53	0.64	0.37	0.11	0.11	1.19	
Wurtemberg.....	470,000	1,025,000	2,260,000	1,235,000	2.17	45	0.87	0.92	0.22	0.33	2.63	
Saxony.....	416,000	1,040,000	2,750,000	1,710,500	2.50	37	0.65	0.81	0.11	0.21	4.11	
Baden.....	235,000	404,000	1,090,000	686,000	1.54	40	0.22	0.83	0.15	0.12	2.90	
City of Zurich.....	2,760	14,000	26,000	12,000	5.00	54	1.14	2.10	0.16	1.14	4.40	

FRANCE.

For centuries the necessity for preserving the forests has been felt in France, and important forest laws were passed in 1569. The present Forest Code dates from 1827, having been little changed.

The forest administration is under the Minister of Agriculture, who is also president of the Forest Council, which includes the Director of Forests and the three administrators of the different bureaus. Under them are thirty-six conservators, who are the higher inspecting and controlling officers; 225 inspectors in charge of divisions; 242 assistant inspectors, the executive officers personally directing the work in their cantonments, and 328 *gardes généraux*, with similar duties. Besides these are about 3,500 forest guards of various grades.

The training for the forest service is far less protracted than in Germany, taking only a third or fourth of the time, while the efficiency of the staff is unquestionable. There is only one higher forestry school, that at Nancy, through which all the candidates must pass, having two years of study there. There is also a professional school at the *Domaine des Barres* for forest guards.

The woodlands of the communes and public institutions, amounting to 4,715,124† acres, are under the control of the forest administration. These bodies may make no clearing in their forests without an express permit from the president. Communal forests can never be divided among the inhabitants. A quarter of the woodland area must always be placed in reserve when these public bodies possess at least seven and three-quarter acres of forest. If chosen by these bodies, the forest guards must be approved and commissioned by the forest administration, which also controls the fellings, sales, &c., the expense of this management being met by a fixed tax.

Private owners are not exempt from control. They may not root up or clear their woodlands without notifying the forest service four months in advance, when the clearing may be forbidden if the forest is deemed necessary on any of the following grounds: To maintain the soil upon mountains or slopes; to defend the soil against erosion and flooding by rivers, streams or torrents; to ensure the existence of springs and water-courses; to protect the dunes and seashore against the erosion of the sea and the encroachment of moving sands; for purposes of military defence; for the public health.

*E. B. Fernow, U.S. For. Div. Bulletin No. 5.
†Increased to 4,738,464. See French Forestry Report, 1894.

A proprietor clearing his forest without permission is subject to a heavy fine and may be forced, in addition, to replant the area which he has cleared.

Under this provident system the forests of France have, of late years, increased rather than decreased. Over 350,000 acres have been reafforested in connection with the extensive engineering works to control the torrents in the Alps, Pyrenees and Cevennes. The plantation of the dunes and landes has also been carried on systematically on an extensive scale, transforming into a source of profit what was once a cause of danger and destruction.

Even with such scientific forestry, France does not draw from its forests sufficient timber for the wants of the country. This is shown plainly by the following quotation from the description of the French forests by Major Bailey, an expert in forestry, whose account is endorsed by the authorities of the French forest administration. He says :—

“Of the 21,500,000 loads of wood produced, about 4,000,000 loads were timber and the rest firewood. The latter sufficed for the national requirements, but the former was far from doing so ; for the imports of wood of this class exceeded the exports by 2,062,432 loads, valued at £6,408,000, that is to say, that it was less than two-thirds of the amount required. The question of foreign timber supply is, therefore, a very important one, even for France, which has seventeen per cent of its area under forest.”
—Major F. Bailey, R.E., Vol. XI. Trans. Scot. Agric. Soc.

The French Forest Administration in its report of 1892 (contained in the report of the Department of Agriculture) gives a full statistical and descriptive account of the forests in its charge at the beginning of 1893.

The areas under the control of the forest service were as follows :—

	Acres.
Forests of the public domain	2,691,156
Forests of the communes and public institutions.	4,738,464
Total under forest service.	<u>7,429,620</u>

This is estimated at 5·6 per cent or about an eighteenth part of the total area of France, the forests and woodlands of private proprietors, amounting to more than 16,000,000 acres, not being included.

It is remarked in the report that :

“Although designated, according to custom, by the name of forests, the properties which compose the domain controlled by the forest agents are not entirely wooded. They comprise, besides the forests properly so-called, considerable stretches of land scarcely occupied, or even bare, sandhills, naked rocks, &c. There have accordingly been set aside the areas occupied by re-afforestation, the literal zones of the region of the *dunes* or sandhills, the bare lands or pastures, the shelter zones of the high mountain regions and the tracts specially maintained for hunting and shooting.”

The following is the result of this classification :—

Class.	Total areas.	Forests properly so-called.	Unproductive area.	Percentage unproductive.
	Acres.	Acres.	Acres.	
State forests.	2,691,156	2,206,175	484,981	18·0
Forests of communes and institutions.	4,738,464	4,565,358	173,106	3·6
Total.	7,429,620	6,771,533	658,087	8·8

Forest wealth of Canada.

“It will be remarked that the proportion of unproductive area is five times greater in the State forests than those of the communes and public institutions ; eighteen per cent of the one and 3·6 per cent of the other. This fact is easily explained.

“Properties belonging to the communes and public institutions are not placed under the control of the forest service unless they form forests capable of regular utilization or are composed of land convertible into woodland with relative ease. When some unproductive portions are included it is from the necessity of withdrawing these tracts by an effective supervision from causes of degradation which might have serious consequences for the existence of the forests, for the security of dwellings and of neighbouring cultivated lands.

“The State, on the contrary, while it is a * proprietor of productive forests, has also to consider public utility. Charged with the duty of arresting the invading sandhills and of remedying the disasters arising from the deforestation of the mountains, the State holds and even acquires each year tracts of land, which not only bring in no return, but are a cause of expenditure because of the cost of their superintendence and of the works designed to render them accessible, to hinder their degradation and to cover them with vegetation.

“But if these tracts make no return to the State, considered as investments, on the other hand they are of an incalculable benefit to the State as representing the interests of the community, since they protect villages, roads, railways and cultivated lands against invasion by sands, avalanches or torrents. The damage done by torrents may be reckoned by millions, and we may also estimate by millions the profit derived by the country from unproductive forests, which prevent the formation of new torrents or have removed those which recently worked their ravages.”

There follows a table giving the areas in the 87 departments of the forests under the control of the forest service, distinguishing those of the State from those of the communes and public institutions, the productive from the unproductive.

Taking the whole of these forests the 27 departments having more than 98,840 acres each (40,000 hectares) are grouped on the south and east frontiers, bordering on the Pyrenees and Alps, forming the great forest region of the north-east and covering the Island of Corsica. These 27 departments contain 72 per cent of the total area under the forest administration.

Appended to this report of the French Forestry administration there are 20 maps showing very clearly by the depth of colour the distribution of the public forest in the different departments ; these comprise the total areas, the unproductive areas, the State forests, the forests of the communes and public institutions, productive and unproductive areas, coppice, coppice under standards, coppice under conversion, high forests, quantity and value of production, and production of oak and coniferous woods.

From these maps, especially that showing the unproductive area of the state domain under the forestry service, it may be seen that land of this description is chiefly in the departments bordering on the Alps and Pyrenees and on the southern part of the west shore. This is owing to the large tracts that are under process of reforestation, on the mountains to control the torrents and on the *landes* and *dunes* to fix the sand.

In passing on to consider the methods of treatment of the forests, the unproductive areas are excluded, only the productive forests and woodlands being included.

The productive State forests are divided as follows :—

	Acres.	Per c.
Coppice, coppice * <i>sarté</i> , coppice † <i>foreté</i>	55,798	2.5
Coppice under standards	645,017	29.2
Coppice in process of conversion	368,811	16.8
High forest	1,136,549	51.5
Total	2,206,175	100

**Sartage* is the treatment where the chips, twigs, &c., from cutting the copsewood are burnt on the ground, the ashes manuring the soil for a cereal crop between the stools the following year ; it is chiefly practised in the Ardennes.

†*Foretage* is the selection of the coppice shoots for cutting at a certain size at intervals, instead of clearing the whole of a certain area ; it is practised chiefly in the valley of the Seine for fuel, and in coppices on mountain slopes where total denudation would be hazardous.

As coppice produces chiefly firewood, with decreasing demand the State has aimed at reducing the proportion of its domain thus treated, so that it amounts at present to only 2·5 per cent. Part of this consist of the woods of holm-oak in the departments of Vaucluse and Var, that tree producing firewood, charcoal and tan bark, but not being suitable for the growth of timber.

The coppice under standards with its production of timber and small wood, is found especially remunerative near the large towns and coal mines, where the periods of cutting are extended so that the copsewood affords a large proportion of mine props, &c. It amounts to 29·2 per cent.

The coppice in process of conversion into high forest amounts to 16·8 per cent.

The high forests occupy more than half of the productive area of the State forests, 51·5 per cent. At the head are the fir and beech forests of the Vosges, the pine forests of Corsica, the beech forests of the Lower Seine, the oak forests of Allier, and the maritime pine forests of Gironde and the Landes, the latter being of recent creation to bind the shifting sands.

The productive forests and woodlands of the communes and public institutions are divided as follows :—

	Acres.	Per c.
Coppice, coppice <i>sarté</i> , coppice <i>foreté</i>	672,222	14·7
Coppice under standards	2,429,586	53·2
Coppice in process of conversion	45,338	1·0
High forest	1,418,211	31·1
Total	<u>4,565,358</u>	<u>100</u>

The report remarks : “The proportion of the forests of the communes and public institutions subject to treatment as simple coppice (14·7 per cent) seems high enough as compared with that of 2·5 per cent in the State forests. But one must not lose sight of the fact, that when it is a question of regulating the treatment of a communal forest the administration is bound to give great weight to local wants, and that in the cold mountain regions where transportation is very difficult a hardwood coppice placing within reach of the commune a fuel of good quality, may often render more service than a coniferous forest the produce of which, of little value as fuel, would not sell as timber for want of a market.

“Coppice under standards occupies 53·2 per cent of the area of the forests of the communes and public institutions. It is the system preferred by the proprietors, who hesitate to invest a considerable capital in their forest domains and who yet wish to improve the yield by the production of a certain quantity of timber, principally oak. The temperate regions of plains and hills are particularly fitted for coppice under standards. These conditions are met with in the north-west of France where the communal forest property is very extensive ; it is easy, therefore, to understand the important place occupied by the coppice under standards in the forests of the communes and public institutions.

“The coppices in process of conversion into high forests, occupy only one per cent of the total area of the forest of the communes and public institutions. There is nothing astonishing in this. The communes and public establishments generally wish to realize the whole of their forest revenues as soon as they are available ; their financial situation, the daily wants which burden them, make this a necessity. But they know that a coppice cannot be converted into high forest without augmenting considerably the capital in timber left standing, which necessarily exacts, during a period more or less prolonged, an accumulation of savings in the shape of standing timber. These savings can only be made by a diminution of revenue. Nor are all the conversions in progress in the communal forests the result of an aim methodically pursued. A good number of them are the consequence of circumstances created neither by the administration nor the communes. Thus in the Pyrenees, the Alps and the central forest, certain coppices, which remained unworked for want of markets and became too old to push fresh shoots, have grown into high forests and later will be renewed by sowing.

Forest wealth of Canada.

“The high forests of the communes and public institutions, 31·1 per cent, are principally to be found in the mountainous departments of the east and south and in Corsica. These forests are principally coniferous, more or less mixed with beech. The communes own very little oak forest, the communal forests of this wood being oftenest treated as coppice under standards.

The production in quantity for the year 1892 was as follows:—

From the State forests :

Wood	96,135,860 cubic feet.
Cork	257,497 lbs.
Tanbark	31,237,859 do
Resin	4,170,662 do
Total value \$5,047,645.	

From the forests of communes and public institutions :

Wood	169,439,938 cubic feet.
Cork	673,285 lbs.
Tanbark	51,051,702 do
Resin	1,806,229 do
Total value \$6,377,704.	

From all the forests under control of the forest administration :

Wood	265,575,798 cubic feet.
Cork	930,782 lbs.
Tanbark	82,289,561 do
Resin	5,976,891 do
Total value \$11,425,349.	

The average yearly produce per acre, calculated on the productive forest area only is as follows:—

Quantity (wood) per acre :

State forests	43·58 cubic feet.
Forests of communes and public institutions.....	37·11 do

Value per acre :

State forests	\$ 2·29
Forests of communes and public institutions.....	1·40

There is a marked superiority in the returns from the State forests. The products which they furnish are at the same time greater in quantity and of better quality.

The quantity of material produced has varied with the system of treatment as is shown in the following table:—

PRODUCE BY THE ACRE IN CUBIC FEET.

	Coppice.	Coppice under standards.	Coppice under conversion.	High forests.
State forests.....	13·68	48·90	41·07	42·85
Forests of communes and public institutions.....	17·87	49·01	23·52	26·28

The production from the coppices is evidently greater in the forests of the communes and public institutions than in the State forests. This arises from the State having retained as coppice only the poorest of the forests.

As to the coppices under standards the production is nearly equal in the two classes.

In the case of coppice in process of conversion the return is much larger in the State forests. The groves which the State has resolved to convert into high forest have been chosen from the best of the forests, those from which they calculated to obtain choice timber.

The high forests of the State have a product far exceeding that of the high forests of the communes and public institutions.

Of the products of the forest under the control of the forest administration, 81·3 per cent are hardwood and 18·7 per cent coniferous wood. The timber is 23·1 per cent, (oak 7·04, other hardwood 2·1 and coniferous wood 13·6); poles and props 1·03 per cent and firewood 75·6 per cent. (70·9 hardwood and 4·7 coniferous).

AUSTRIA.

“The paternal government of Austria prescribes the most stringent laws regarding the culture and preservation of the forests belonging to the imperial domain, to municipalities or to private individuals. According to our ideas these restrictions are rather autocratic; but they serve their purpose and the Austrian woodlands are renowned for the good and exemplary care taken in their preservation. The latest statistics place the productive land of the empire at 28,406,532 hectares; of these 9,227,061 hectares are forest lands, of which 1,331,433 are hard woods, 6,587,853 pine woods and 1,257,775 brushwood. The forests cover about the fourth part of the empire and are of great value. Their cultivation and preservation and the administration of the laws with reference thereto are entrusted to the ministry of agriculture, the provincial president and district captains. Their subordinates must all pass an examination. * * *

“A forest register is kept and maps are drawn of each district, which specify the number of acres covered by forest, its condition, age and state of growth. The expenditures for government forests are 3,546,240 florins; revenues, 3,951,650 florins; showing a profit of 405,410 florins. The government forests contain 952,689·96 hectares, municipal 1,297,238·21, private 6,977,133·03. The largest private owners are: the Emperor, 35,000 hectares, Imperial family, 25,000, Archduke Albrecht, 115,000, Prince Johann Lichtenstein, 136,103, Prince J. A. Schwarzenberg, 110,718, Count Schönborn, 124,563, Prince of Saxe Cobourg, 74,181, Baron von Sina, 60,000, Prince Esterhazy, 85,000.”—U. S. Con. Rep. No. 131, 1891.

SWITZERLAND.

“There is a federal bureau of forestry, known as the third division of the department of Commerce and Agriculture, that assumes direct management of the federal forest districts (mountains or Alps) and the forests outside of this district are under the control of the respective cantonal governments. The federal forest inspector is vested with the power to see to the enforcement of the forest police laws and regulations both of the Confederation and the cantons. In all the cantons with the exception of Basle Land, Basle City and Geneva, there is a chief forester under whom the entire administration is placed. In addition to him nearly every large city and commune have special skilled and educated foresters for the more careful attention to their local forests. All, however, are subject to the orders and the immediate direction of the cantonal chief forester, as he is subject to the authority of the federal department of forestry.

“The destruction of forests is well safeguarded by the federal law of March, 1876, and previous to its enactment most of the cantons had rigid state laws against any dangerous clearing of the forests. As a rule any person, commune or corporation wishing to make a clearing must obtain the consent of the forest director, or if the proposed clearing is included in whole or part within the federal forest district, the assent of the proper government officials is required. As a condition to the granting of the permission, the parties must either replant the clearing with shoots or pay a sum sufficient to have it done.”—U. S. Cons. Rep. No. 74, Feb. 1887, pages 428-9.

Forest wealth of Canada.

The Swiss Confederation has the right of supervision over the police of the forests and of framing regulations for their maintenance. The entire forest area of Switzerland is 828,770 hectares in extent. The district over which the federal supervision extends lies to the south and east of a tolerably straight line from the eastern end of the lake of Geneva to the northern end of the lake of Constance. It comprises about 452,326 hectares, and the federal forest laws apply to all cantonal, communal and municipal forest within this area, those belonging to private persons being exempt, except when from their position they are necessary for protection against climatic influences. In 1876 it was enacted that this forest area should never be reduced; servitudes over it, such as rights of way, gathering firewood, &c., should be bought up; public forests should be surveyed, and new woods planted where required, subventions for the purpose being sanctioned. There have been bought up (1881-91) 2,057 servitudes, costing 726,938 francs; up to the end of 1891 the cadastration of 95,380 hectares of forest had been executed and in the year 1891, 700,000,000 trees were planted. Subventions are also granted to the free forest districts, comprising 3,827 sq. kilometres of forest. In most cantons forest administration is conducted by a department under a member of the government, assisted by a chief forester, but in some by a committee chosen directly by the people.—Statesman's Year-Book, 1893, page 1006.

RUSSIA.

About 50 years ago, in consequence of the attention that had been drawn to the depletion of the woodlands in Russia, steps were taken for the organization of the Crown forests. It was not, however, till 20 years later that the present organization was established, and considering the vast field to be covered, it is not surprising that forestry is comparatively in its infancy in the Russian empire, and that much of the forest land is not yet subject to its influence. On the staff, there are 350 forest and field surveyors, whose duty it is to make plans for exploiting the forests of which they have determined the boundaries and made the necessary subdivisions. These plans are revised after a lapse of ten years, and they are carried out, and the practical work done by a large staff of local forest officers. The great forests of the north have, however, not yet been subjected even to this preliminary process of surveying. It is in the other parts of the empire, where the forests are more accessible, and their maintenance more immediately urgent, that the forest staff have already done much good work. Their efforts have not been restricted merely to conservation, for on the steppes, the Russian prairies, extensive planting has been undertaken; the plantations already amounting to 130 square miles, while additions of about three square miles are being made each year. Much successful work is also being done in binding shifting sands by planting suitable trees.

While the Crown forests are thus being cared for, those of corporations and private owners are not exempt from control. In 1888 a law was passed for the protection of forest lands. By this law throughout European Russia forests may be declared "preserved woodlands" on the following grounds:—that they serve as preventives against the formation of dry sand tracts and their encroachment along sea-shores or the banks of navigable rivers, canals and artificial reservoirs; that they protect from sand drifts, towns, villages, cultivated land roads, &c.; that they protect the banks of navigable rivers, canals and spring sources from landslides, overflows or injury by the breaking up and passing of the ice; that growing on hills, steep places or declines, they serve to check land or rock slides, avalanches and sudden freshets; and all forests that protect the springs and sources of rivers, and their tributaries. These preserved forests may not be converted into arable land, and even felling may not be practised without official sanction. The scheme of administration of these forests must be approved by the local forest committee, so that there may be constant renewal to replace the cutting. If serious outlay is required the owners may transfer the forests to the government at their estimated value, having a right of redemption for ten years on paying the expenses and interest.

Even forests not comprised in these preserved woodlands, though in the hands of corporations or private owners, are subject to regulations. They may not be cleared

without good grounds being shown ; wholesale cuttings that would exhaust the stock of timber and prevent the natural re-growth are forbidden ; the pasturage of cattle is prohibited in young forest. To facilitate these restrictions the owners have to submit plans for cutting to the forest committee for approval, and in case of infraction they have to replant the illegal clearings, or if this is neglected the work is done by the committee at the owner's expense.

In each government there is such a committee for the protection of forests, under the presidency of the Governor General and composed of the representatives of the local administration, the justices of the peace, the county council and forest owners. They have power to declare what shall be classed as "preserved forests," and to sanction the plans of the owners of unpreserved forests. In preserved forests these plans are made at the expense of the government, in unpreserved forests at the expense of the owners. In each province the government maintains an inspector-instructor, whose duty it is to advise those who apply to him in forest matters, and as far as possible to superintend on the spot all forest work. The government also has established nurseries from which private owners can obtain young trees and seeds at a low price. The owners are allowed to employ as managers of their forests the trained officials, who still rank in the forest corps, and medals and prizes are given yearly to forest owners for excellency in forest culture and management.

Adequate provision is made for instruction. There is at St. Petersburg a Forest Institute in which theoretical training is given, supplemented by practical studies on the ground in the summer, the staff comprising sixteen professors and seven assistants. At New Alexandria in the Vistula provinces there is another Forest Institute, and there are chairs of forestry in a number of colleges and schools. Besides this there are thirteen lower forest schools, where the instruction is largely by practical work in the forests, the trained pupil joining the government forest corps or being employed by private owners.

Forest societies have been formed by private enterprise at St. Petersburg, Moscow and Riga, and are doing much to spread a sound knowledge of forestry.

SWEDEN.

"Sweden's lumber export consists chiefly of sawed stuff, four-fifths being deals, battens and boards. The remainder is principally squared timber, usually hewn ; spruce logs, used for piling ; yards, booms and masts, and pit props. For 1881-5, the exports of unmanufactured lumber averaged \$25,864,000 annually. There were also manufactures of wood to an annual value of about \$4,500,000. The production of wood pulp has increased very rapidly of late years. It is made chiefly from spruce. The greater proportion of the wood pulp is consumed at home, yet, in 1885, 16,000 tons were exported, and in 1889, the export had increased to more than 52,000 tons.

"More than one quarter of the entire wooden area of Sweden, or 14,300,000 acres, belongs to the Crown. This is valued at \$13,588,000, nearly \$1 an acre, and in 1888, yielded a net income of \$335,000. These royal timber preserves are managed with scrupulous care. All Sweden is divided into forest districts, and these, in turn, into *revir*. Each district is under the supervision of a chief forest inspector, and each *revir* is guarded by a forest ranger and a number of under-keepers. Only trees marked by them are permitted to be felled. The Crown forests are managed, in fact, on the principle that the increase alone may be cut, and that the forest itself—the capital stock, so to speak—shall stand forever on all Crown lands unsuitable for cultivation. Furthermore, the Government has entered upon an extensive and practical system of planting forests upon desolate and uncultivated areas. These excellent official measures have also had a marked effect upon the owners of the private forests, especially upon the larger proprietors, many of whom are now managing their timber lands as permanent sources of income. It is my judgment, therefore, that the vast forests of Sweden will be preserved and maintained, substantially, as they stand to-day, and that Sweden's lumber export—her greatest source of income—will be kept up and kept good throughout an indefinite future."—U.S. Cons. Rep. No. 125, 1891—pages 227-8.

Forest wealth of Canada.

NORWAY.

The French Consul at Christiania, gives the following information on the forests of Norway :—

“The forests* cover a territory of 19,752,393 maal, or 4,803,216 acres, divided as follows :—

	Wooded.	Unproductive.	Total.
State	7,748,967	9,895,738	17,644,705
Districts and communes.	1,762,348	345,840	2,107,688
Total	9,511,315	10,241,578	19,752,393

“The average value of a hectare (2.47 acres) of forest is 43 crowns (about \$11.60).”
—U.S. Cons. Rep., Vol. 26, 1888, page 241.

“The forest wealth of Norway has, for a long time, been steadily declining. The forests owned by the State and communities are estimated to cover an area of 1,000,000 hectares, or 2,500,000 acres. Since 1866, the Government has bought about 37,000 hectares of woodland in different sections of the country, but the aggregate forest land of Norway is supposed to have diminished in an equal ratio, by the destruction of private woods. The value of public and communal forests is estimated at \$4,000,000, and they occupy only twelve and a half per cent of the aggregate forest ground of the country, which may be computed at nearly 8,000,000 hectares or 20,000,000 acres. In Sweden, the public forests amount to sixteen per cent ; in Bavaria, fifty-one per cent ; in Baden, seventy per cent ; in Prussia, sixty-eight per cent, and in France, thirty-five and a half per cent of the total forest land.”—U.S. Cons. Rep. Vol. 122, 1890, page 394.

“A royal commission was appointed in 1874 to examine the condition of private forests and the general wood supply of the country, and their report was quite alarming. It was estimated that the five southern ‘stifts’ or provinces of Norway, which together, embrace about 17,000,000 acres, consumed in 1875, 401,000,000 cubic feet of wood, while the reproduction did not exceed 293,000,000 cubic feet, which gave a year’s deficit of 108,000,000 cubic feet. Forty years earlier forest statistics recorded a fair surplus of production over consumption, and in 1855 there was nearly a balance. The committee stated that the yearly loss, already so large, must increase for every year, and the Government has no longer any means to arrest the destruction of the forests. Extensive purchases of private forests by the Government were recommended, although the committee did not expect great results from the adoption of this measure alone. The spread of knowledge of rational forestry can have but a limited influence, although the Government has now established a few forest schools in different parts of the country. The only means of protection now left would be a law restricting the disposal of forest property by the private owners and forbidding the destruction of young forest trees. Such a law already exists in France, Italy, Germany and Switzerland, and to a certain extent in Sweden. Its adoption here, was, in fact proposed in 1882 by the Government, but since then no further steps were taken in the matter, public sentiment being much opposed to the restrictions projected. The legislature finally took the matter in hand last year, and there are now many who urge immediate adoption of measures for preserving at least a part of the forests which still form an important factor of the national wealth and the principal resource of a large tract of the country. The forests have lately suffered the loss of many young trees of small dimensions, cut down either for exportation, or for pulp manufacture at the domestic mills. The so-called cellulose wood, prepared from small trees, and cut very short to escape the export duty on wood, is at present in good demand in foreign markets.”—U. S. Cons. Rep. No. 122, 1890, page 394.

“Great Britain now takes about two-thirds of the exports of Norwegian wood, viz., nearly 1,200,000 cubic feet per annum.” * * * “Australia had in 1889, declined by a third from 1888, but the Cape of Good Hope and Port Natal had in the meantime doubled their consumption of the Norwegian article, sold at good prices.—U. S. Cons. Rep. No. 122, 1890, page 395.

*Public and not private forest, apparently.

EXPORTS OF PRODUCTS OF FORESTRY AND WOOD INDUSTRY.

	Kroner.
1866-70 average.....	31,040,000
1871-75 do	44,950,000
1876-80 do	38,800,000
1881-85 do	42,860,000
1881 year.....	44,910,000
1882 do	45,890,000
1883 do	43,800,000
1884 do	40,520,000
1885 do	39,160,000

“Of the value above given of the Norwegian forestry products exported in 1885, 31,236,000 kroner belong to timber properly speaking, 5,664,000 kroner to wood pulp, and 1,802,000 kroner to matches.

EXPORTS OF TIMBER DURING THE TEN YEARS, 1876-85.

	Planed timber. Reg. ton.	Sawed timber. Reg. ton.	Hewn timber. Reg. ton.	Round timber. Reg. ton.	Staves Reg. ton.	Firewood Reg. tons.	Totals Reg. tons.
1876.....	144,199	340,594	134,572	240,846	29,854	42,589	932,654
1877.....	158,279	314,186	101,479	197,292	28,151	31,121	830,508
1878.....	162,198	219,193	97,846	195,429	27,016	35,332	737,014
1879.....	164,770	176,893	102,134	207,417	26,148	29,496	706,858
1880.....	193,654	245,548	105,628	290,739	30,161	29,576	895,206
1881.....	227,088	228,951	80,016	280,429	34,405	31,102	881,991
1882.....	234,044	268,484	66,485	278,520	34,526	36,750	918,809
1883.....	247,667	244,150	66,165	303,007	43,977	40,190	945,156
1884.....	238,954	243,920	69,356	307,826	39,969	39,206	939,231
1885.....	245,936	236,011	59,441	242,666	33,928	42,405	860,387

“The quantity of the exported timber was smaller in 1885 than in any of the previous five years, and was less by 49,000 register tons than the average exports for the years 1881-85, but 40,000 register tons larger than the quantity for the years 1876-80. The exports of sawed and planed timber have during the last years generally been somewhat over 480,000 register tons, after having reached 502,500 tons in 1882, the largest quantity exported since 1873 and 1874, when it arose to 570,000 and 550,000 register tons respectively. Of planed timber a somewhat larger average quantity was exported during the last years than of sawed timber, while in 1877 the proportion was one-third of planed to two-thirds of sawed timber. The exports of hewn timber, *i. e.*, beams, &c., have steadily declined, and amounted in 1885 to not much more than one-half the average exports of the years 1876-80, and to one-third of the average exports of 1871-75. Also the shipping of mining timber and pit props was smaller than in the years immediately preceding.—U. S. Cons. Rep. Vol. 22, 1887, page 777.

“The export of wood pulp rose from 8,540 tons in 1875, to 26,055 tons in 1880, and 90,781 tons in 1885.—*Ibid*, page 778.

FORESTS OF BRITISH COLONIES AND DEPENDENCIES.

INDIA.

Forestry in India is a comparatively modern institution. In former times no doubt considerable areas were scrupulously protected in many parts of the country, but wherever this was the case, the forests were kept as game preserves for the pleasure of kings, princes and great nobles. The idea of conserving forests in order to maintain an uninterrupted supply of forest produce useful and even necessary for the people; the idea of maintaining a proportion of the country under forests on account of the indirect

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benefits conferred on the Empire at large by the very existence of forests, was never thought of by former governments. Even during the earliest times of British sway, the economic value of forests was not recognized, and they were considered more in the light of impediments to the increase of cultivation and consequently to the general prosperity of the empire than otherwise. This period has passed away and the necessity for the maintenance and conservative treatment of forests as a mainstay of agriculture is now almost universally recognized, while forestry conservancy is regarded as a duty of the State.

Naturally incalculable harm was done by the inconsiderate destruction of the forest, especially in the more populated districts, where the demand for new land was greatest and where the forests were often already less than the state of the country demanded. Large areas, though not immediately destroyed, were alienated by settlements and grants, and were thereby withdrawn from further active interference on the part of government. Security to life and property enabled the peasants and herdsmen to graze their cattle far from their homes and unprotected, and at the same time such cattle increased in value. Herds naturally increased, and additional grazing areas being required, these were cleared by fires, thereby opening the way to future famines and distress. Railways soon spread over the country and forest growth disappeared with an incredible rapidity within the reach of their influence, partly on account of the direct demands made on them for construction works—demands which were frequently supplied in a wasteful and reckless manner; partly on account of the increased impetus given to cultivation.

It was only when failures to meet local demands for public works were brought to notice that the value of the forests was gradually brought to light, and it came to be understood that a question of such general magnitude and importance could only be efficiently grappled with by a special organization. It was thus that the forest department came into existence.

As a matter of course, it rested with the government to show the lead, and the first step in the new direction was naturally to ascertain the extent of the forest property still remaining in the possession of the State and to what extent such property was burdened by rights. The Oriental governments, from which the British government inherited its forest property, never recognized the accrual of any prescriptive right; but on the other hand anybody was accustomed, without let or hindrance, to get what he wanted from the forest, to graze his cattle where he liked and to clear jungle growth for cultivation wherever he listed. This state of things, it is self-evident, did not permit of systematic forest management and it became clear that a forest law and a forest settlement were urgently required. It was necessary that the forest law should define the forests in which the right of the State was still absolute; forests which were the property of the State but which were burdened with legal rights, prescriptive or granted; and forests the property of individuals or communities, but in which the State had rights over all or certain kinds of growing trees.

The first Indian Forest Act was passed in 1865, after several local rules and Acts had been introduced and had been in force for a longer or shorter time.

The Act of 1865 was found in actual practice to be wanting in many important respects and was replaced by the Act of 1878. Even in this new Act, however, faults were at once recognized, and separate Acts were passed for Burmah and Madras in 1881 and 1882 respectively.

All three Acts provide for the formation of government reserves and the settlement of rights within them; also for the constitution of village forests. They contain forest police rules, necessary for the protection of government forests and forest produce. The Indian Forest Act contains in addition, provisions for the creation of protected forests. All three Acts provide for the control over forests not belonging to the State if such control appears necessary for the public weal, or if the treatment which such forests have received from their owners injuriously affects the public welfare or safety.

The controlling staff numbers about 170 officers, of whom 50 per cent have received a scientific training in forestry, and were appointed in England by Her Majesty's Secretary of State. Most of these officers were trained in France, and some in Germany.

In 1885 a forestry school was established in England at Cooper's Hill, near Windsor, with a course of three years, three months of the last year being spent in an excursion to the best European forests. There is also a forest school in India for native assistants.

By fire protection, the regulation of grazing and the general protection of the forests, ample reproduction is, after a shorter or longer period as a rule, ensured in the more valuable forests of India.

The results are seen in the following statement :—

Quinquennial Periods.	Revenue.	Expenditure.	Surplus.
	Rupees.	Rupees.	Rupees.
1864-5 to 1868-9, annual average.....	37,38,189	23,81,732	13,56,457
1874-5 to 1878-9 do do	66,55,913	45,76,372	20,79,541
1884-5.....	1,01,02,420	68,27,373	32,75,047

Dr. Schlick prophesied five years ago, that in twenty-five years the net surplus will be four times the present amount, if the Government of India perseveres in its forest policy as developed in the past.

NEW SOUTH WALES.

“The forest area of New South Wales would probably not exceed 30,000 square miles out of a total area of 310,938 square miles. * * The country east of the great dividing range is estimated to contain 50,000 square miles, one-fourth of which probably consists of forests.”

“There are 47 varieties of the *Eucalyptus* in New South Wales. * * The best known of these is the celebrated blue-gum, *Eucalyptus globulus*. This tree grows to a greater height than any other in the world, and sometimes rises to 200 feet before sending out a branch. It reaches a greater height, however, in Victoria and Tasmania than in New South Wales. The highest ever felled in the latter colony was 360 feet, while in Victoria one was felled (at Healsville, 37 miles from Melbourne) measuring 480 feet (14 feet higher than the Strasberg Cathedral). The circumference of this giant of the forest was 100 feet. In Tasmania these trees not unfrequently attain a height of 400 feet.”

“There are about 100 different varieties of the acacia in New South Wales.” Their bark is used for tanning, and the wood of some species for cabinet work.

Pine trees of various kinds exist, but are scarce and inaccessible.

“With the exception of the Government reserves which include about 5,400,000 acres, all forests or Crown land in New South Wales are common property except for grazing purposes. The Government reserves are, however, of a temporary character, and are reduced from time to time partly because upon careful examination they are found to contain little or no timber, and partly because the Government yields to the pressure brought upon it to put the land up for sale. The Government also controls large areas of unreserved timber lands, but when once sold it has nothing to do with the timber upon them.”

“Rights to cut and remove timber from blocks within State forests are sold by auction or by tender at an upset price of £10 (\$48.66) per block of 640 acres per annum, for the term of one year only, unless circumstances should justify the Government in special cases in extending the term to three years, and then in addition to block rental, a royalty will be imposed.”

There are also licenses to cut timber from Crown lands at 5s. (\$1.20) for ordinary timber, and 10s. (\$2.40) for cedar. Firewood may be freely cut for use, not sale.

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A forest conservatory bureau is attached to the Department of Mines, the field staff consisting of one inspector, 28 forest rangers, and ten assistants. They have not had a scientific training as in India.

The licenses impose restrictions as to the size of trees to be cut. Trees may not be felled within a chain and a half of a navigable river.

Some planting, but not much, has been done.

The imports are large, being as follows for 1885-6 :—

DRESSED.

	1885.		1886.	
	Sup. feet.	\$	Sup. feet.	\$
United Kingdom.....	3,522,771	159,840	6,404,626	314,760
New Zealand.....	5,304,866	218,245	5,376,615	198,945
Australia (rest).....	1,005,899	74,625	1,216,237	84,450
Norway.....	5,423,341	218,600	5,762,179	207,675
United States.....	3,436,799	178,325	4,479,598	187,350
Canada (B.C.).....	767,319	30,165	113,577	4,000
Other countries.....	3,850	2,265	208,443	10,585
Total.....	19,464,845	882,065	23,561,175	1,007,765

UNDRESSED.

	1885.		1886.	
	Sup. feet.	\$	Sup. feet.	\$
United Kingdom.....	1,732,186	61,580	1,519,040	58,225
New Zealand.....	10,537,974	287,880	8,465,653	220,385
Australia (rest).....	3,261,291	144,615	1,655,728	98,305
Norway.....	785,595	27,975	1,039,042	31,020
Sweden.....	477,314	23,850	513,004	21,000
United States.....	19,728,436	581,140	25,761,156	686,395
Canada (B.C.).....	9,485,774	272,675	1,808,416	40,000
Other countries.....	172,209	9,980	281,576	9,205
Total.....	46,180,779	1,409,695	41,043,618	1,164,535

U.S. Consular Reports, Vol. 23, 1887.

The following table will show some of the articles New South Wales imported in 1892 and the portion of each she obtained from the United States and from Canada :—

Articles.	Canada.	United States.
	\$	\$
Dressed timber.....	30,000	46,000
Rough timber.....	46,000	537,500
Doors.....		71,300
Shooks and staves.....		650
Laths.....	1,775	12,475
Shingles.....		5,000

U.S. Cons. Rep. No. 155, 1893, Page 410.

VICTORIA.

Many years ago attention was called to the wastefulness and improvidence of the dealings with the forest of Victoria, as of other parts of Australia. The timber was not only being diminished by clearings for settlement, by ordinary home consumption and by fires, but immense numbers of standing trees were killed owing to the practice of stripping from them large sheets of bark to cover, perhaps, a mere temporary hut.

In 1876 an Act was passed called the State Forest Act, which provided, first, for the appointment of local forest boards, which were to have the care of reserves and other Crown lands; secondly, for the appointment of foresters by local forest boards; and thirdly, by the promulgation by the Governor in Council of regulations prescribing the duties of these boards. In 1884 this Act was superseded by a new one, which deals with the formation of State forests and timber reserves and their management, and with the management and disposal of timber and other forest produce, not included in the State forests and timber reserves.

The forests generally are worked under the license system, regulated by the rules made under this Act. There are licenses for felling, splitting, clearing undergrowth, the erection of saw-mills, grazing, the removal of bark, &c.

The results of this measure were not equal to the anticipations, the causes assigned for this failure being the bad license system, the ill-arranged classification of State forests, timber reserves and Crown lands, the absence of professional foresters to direct operations, and the neglect to reserve the best natural forests.

SOUTH AUSTRALIA.

“The planting of forest trees and the conservation of woods and forests very properly receive a large amount of attention in South Australia. The colony is beginning to feel the benefit of it, as a considerable quantity of timber for railway sleepers has been cut during this year, giving a revenue of £2,660 in excess of expenditure, exclusive of special votes. Since the organization of the department ten years ago, £59,643 has been received by it for timber sold, land rented for grazing, &c., and £58,216 has been expended as permanent improvements upon the forest reserves. From the commencement the total net profit made by the department has been £827. The work is very progressive and every year shows considerable advance beyond the previous one. The revenue of the past year was £8,123, or £1,606 in excess of any former year. No less than 165,324 acres in various parts of the colony are forest reserves, and of this 6,685 acres are inclosed for planting. The present total value of the permanent improvements effected by the department is estimated at £150,000 for an expenditure of £58,206 spread over ten years, and more than the whole of which has been repaid by the sales of timber, rents for grazing, &c.”—U.S. Cons. Rep., Vol. 23, 1887, p. 741.

CAPE COLONY.

“In 1880 the question of forest management was brought before the colonial parliament. It was pointed out that the persons in charge had received no special training for the work which had in consequence suffered severely, and a salary for a trained forest officer was voted by parliament. The services of Count de Vasselot, of the French School Forest at Nancy was secured, and he proceeded early in 1881 to organize the present forest department. Count de Vasselot adopted the method of dividing the forests into blocks and subdividing them again into sections. Felling now proceeds regularly in biennial sections, so that the regrowth in the first section cut may develop into mature trees by the time the working of the last section is finished, and there will thus be no occasion at any time to close the entire forest from fellings. The period for the revolution of fellings has been fixed for forty years.”—U. S. Cons. Rep., Vol. 24, 1887, p. 360.

“To illustrate the method now used in the colony for the management and conservation of forests, a description of that used in the Knysna, the most extensive and valu-

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able in the colony, will only be necessary. The total forest area of the Knysna is approximately 100,000 acres, of which about three-quarters have been considerably exhausted by reckless and indiscriminate felling. The forest staff at this forest consists of one conservator, three officers of the higher grade and six forest rangers or guards. The work of each officer of the higher grade extends over an area varying, according to circumstances, from 10,000 to 30,000 acres. The timber, or high forest is surveyed by him. He determines the boundaries of series or blocks, and draws up working plans for the formation of sections. All working schemes are submitted to the superintendent of woods and forests, and after their approval the lines are opened, sections surveyed, and trees available for felling counted and stamped with an official mark. The rangers or guards are employed in riding about and reporting infractions of forestry laws. In addition thirteen foresters are employed and distributed over the different forests. Their duties consist in planting and transplanting trees." * * * "Each forester is expected to raise at least 40,000 young trees annually." * * * "There were six foresters in the King William Town forests in 1885, who during that year had 138,080 plants in the nursery, and transplanted into the forest 63,885 young trees." —U. S. Cons. Rep. Vol. 24, 1887, p. 360.

"Over a million plants are now flourishing at Government nurseries." * * * "At the plantation Tokai on the Table Mountain Range, plants have been raised from 150 species of extratropical trees. It is proposed to reforest the whole of the Table Mountain slopes, and in two seasons over 1,000 acres have been planted. Plants are distributed throughout the colony from these nurseries at a nominal rate." U. S. Con. Rep. Vol. 24, 1887, p. 360-1.

The forestry staff at present consists of one superintendent, three conservators, four assistant conservators, and the necessary staff of forest guards.

OTHER FORESTS.

JAPAN.

That Japan is not neglecting the preservation of its forests may be seen from the following account by Heinrich Semler :

"Japan, whose total area includes in round numbers 94,900,000 acres possesses forests of 28,700,000 acres in extent. This people furnishes a shining example in the matter of forestry. Even the old feudal lords were penetrated with the value of the woodlands as they showed by the enactment of vigorous protective laws. When in the recent civil war the Government of the Mikado destroyed the feudal system it declared the forests, as far as they had belonged to the feudal lords, to be the property of the State, and promulgated a forest law which was valid for the whole Kingdom. Accordingly the forests of Japan are about equally divided between the State and private owners. The former manages its woodlands, through a forest service with headquarters at Tokio, where is also the forest school. Founded within the last ten years (from 1888), the school has an average attendance of about 150 and has quite recently been under the charge of Dr. Mayr, whose work on *The Forests of North America* has made his name familiar to the advocates of forestry in the United States. Only a part of the pupils expect to enter the Government service.

"The forest service does not rest satisfied with the present proportion of woodland, but busies itself actively with planting, in connection with which the introduction of foreign species has been attempted.

"There is a notable export of wood from Japan to China, and on the other hand an import from North America to Japan ; which last, however, the Japanese soon expect to be able to do without."

COSTA RICA.

"It is forbidden to cut wood from the national forest without permission of the executive.

"It is forbidden to destroy such trees as exist along the highways, and such trees as may be utilized without destroying them.

"The owners of lands traversed by running streams, on the banks of which the trees have been destroyed, are obliged by law to plant trees along the margins of said streams for the distance of not less than 10 metres on each side of the whole extent of such streams contained in their properties.

"Persons infringing on the above provisions are liable to a fine of not less than \$25 and not more than \$100."—U. S. Cons. Rep. No. 119, 1890, p. 613.

ARGENTINE REPUBLIC.

"The timber of the country is all in the far interior or along the upper rivers, where exist in their primitive condition thousands of leagues of the most magnificent hardwoods to be found anywhere in the world. Laws have been passed by the Argentine Congress for their protection against a vast army of trespassers who make their living by appropriating to themselves all that they can cut and float out of the country. The custom-house returns for this reason, show but a small portion of the timber which leaves the River Plate for foreign ports. The shipments reported to the customs house last year amounted to only \$339,020, against \$394,848 in 1884." U. S. Cons. Rep., Vol. 23, 1887, p. 311.

The value of the imports of "lumber and woodenware" was much greater, amounting to \$5,906,805, of which \$4,219,611 was pine lumber.—*Ibid*, page 327.

VENEZUELA.

"Fustic and other woods continue to be shipped in large quantities, and vessels from Europe and the United States are constantly employed in this trade. During the past year the United States received from Maracaibo, fustic, cedar and boxwood of the respective values of \$37,734.19, \$8,484.85 and \$8,878.85."—U. S. Cons. Rep., Vol. 23, 1887, p. 545.

SIAM.

"Teak is the most valuable timber of the country. It is utilized in immense quantities throughout the east for house building. For ship building it is without an equal; it is largely exported to China and Europe for that purpose, and for resisting the ravages of the white ants and the effects of the weather it is unsurpassed by any other wood. It grows in the northern part of Siam and Burmah at an altitude of 1,200 to 1,500 feet above the sea, and reaches its greatest perfection in about 120 years. Ten or fifteen years make a good sized tree that can be cut down, where quality of wood is not an object. It is generally believed that the forests will become exhausted before many years, there being no law to prevent the indiscriminate felling of timber, nor compulsory planting of new trees. The teak district is from 100 to 150 miles in width, the forests being in charge of the governors of the provinces in which they are situated. They are generally leased for ten years and it behooves the lessee to fell and remove the greatest number of logs possible, he paying a royalty to the governor of \$1.80 a log." U. S. Con. Rep., Vol. 26, 1888, p. 553.

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APPENDIX "I."

TREES OF CANADA.

Canada has always been regarded as a land of forests ; which was certainly true of old Canada, the Maritime Provinces, Quebec and Ontario, and the term is still applicable, though settlement and lumbering have made and are still making great inroads upon our woodland. The North-west Territories also, though having vast prairies, have their great northern forest, and British Columbia is emphatically a forest country.

The tree of greatest importance commercially is the white pine, perhaps the best of all soft woods, which adds so largely to our exports, and is the most valuable element in the forests of Ontario and Quebec, New Brunswick and Nova Scotia. The spruce too, especially in the Maritime Provinces and Quebec, contributes largely to our foreign commerce, also augmented by considerable quantities of hemlock, tamarack, cedar and a variety of hardwoods. In British Columbia the huge Douglas fir provides large and increasing amounts of timber and lumber for exportation.

A more detailed account of our timber trees is given under the head of each province.

ONTARIO.

The great timber tree of Ontario, the main object of our gigantic lumbering operations, is the white or Weymouth pine (*P. strobus*) which besides a large home consumption is imported in enormous quantities by the United Kingdom and the United States, supplying as it does an unrivalled wood for the inside finishing of houses and other purposes. Either in dense pineries or mingled with other trees, it pervades the great valleys of the Ottawa and its tributaries, the Trent River and the streams running into the Georgian Bay and Lake Huron, and in this great pine district much timber still remains though lumbering and forest fires have diminished it seriously. South of this district there used also to be much pine, but the settlement of this portion of the province, has left nothing that could be called pine forests, though many scattered trees and even groves remain, and still afford a considerable supply for local use, as the census returns show. Northward the height of land forms the limit of the already dwindling pine forests, only a small quantity being found beyond it at a few points. Eastward the white pine is a scarce tree to the north of Lake Superior, but still further eastward is again found scattered and in groves, but with nothing like the great central pine forest, on the waters of Rainy Lake, Lake of the Woods and their affluents, even extending a short distance into the south-east corner of Manitoba.

The red or Norway pine (*P. resinosa*), less valuable for lumber, but in demand for building timber and masts and spars, occupies much the same region as its congener, and is commonly associated with it, though in much smaller quantity. Towards the northern limit it becomes more numerous in relation to the white pine, and this is still more the case towards the eastern line, the pine of the Rainy River district being chiefly of the red species.

The other pine found in Ontario, the scrub or banksian pine (*P. banksiana*), extends further to the northward and eastward than the white or red pine. Though sometimes attaining a size making it of some local use, its inferior quality renders it unsuitable for export, and it only needs mention because reports of pine being seen sometimes refer to this tree, but give a delusive idea of valuable white pine forests where they are not in existence.

Good spruce abounds in Ontario and its use is growing, but the prevalence of pine in the lumbering districts causes it to be neglected at present as a matter of commerce. Its increasing use for the manufacture of wood pulp, largely for export, threatens

serious inroad upon this valuable tree. Hemlock is in the same danger from the use of its bark for tanning extract; this tree, as well as tamarack, cedar and balsam fir, are plentiful, and are used locally, but as yet are not much exported.

The hardwoods are of great variety and abundance and are much used both at home and abroad for different purposes. Those of the greatest commercial importance, are: oak, elm, maple, beech, birch, butternut, hickory, basswood, cherry, &c. There are still valuable hardwood forests, though much has been wasted by clearing for agriculture and burning.

Extending into the south-west peninsula of Ontario, was a group of valuable trees, which have become scarce and in some cases almost extinct, such as the black walnut, the tulip tree or whitewood, the plane tree or buttonwood, the chestnut, some of the hickories, the coffee tree, &c.

The following is a list of the trees of the province with their botanical, English and French names:—

O N T A R I O .

BOTANICAL NAME.	ENGLISH NAME.	FRENCH NAME.
<i>Abies balsamea.</i>	Balsam fir.	Sapin blanc.
<i>Acer dasycarpum.</i>	Silver maple.	Érable blanche.
do <i>nigrum.</i>	Black maple.	do noir.
do <i>Pennsylvanicum.</i>	Striped maple.	do jaspé.
do <i>rubrum.</i>	Red or soft maple.	do rouge.
do <i>saccharinum.</i>	Sugar or rock maple.	do à sucre.
do <i>spicatum.</i>	Mountain maple.	do bâtarde.
<i>Alnus incana.</i>	Alder.	Aune.
<i>Asimina triloba.</i>	Papaw.	Papayer.
<i>Amelanchier Canadensis.</i>	June berry.	Alisier.
<i>Betula lenta.</i>	Black birch.	Bouleau noir.
do <i>lutea.</i>	Yellow birch.	do élané.
do <i>papyrifera.</i>	Canoe birch.	do à papier, ou à canot.
<i>Carpinus Caroliniana.</i>	Hornbeam.	Charme.
<i>Carya alba.</i>	Shell-bark hickory.	Noyer tendre.
do <i>amara.</i>	Bitter hickory.	do dur.
do <i>microcarpa.</i>	Small fruit hickory.	Petite noix.
do <i>porcina.</i>	Pignut hickory.	Noyer brun.
do <i>tomentosa.</i>	White heart hickory.	Noix blanche.
<i>Castanea Americana.</i>	Chestnut.	Chataignier.
<i>Celtis occidentalis.</i>	Sugar berry.	Macocoulier.
<i>Cornus Florida.</i>	Dogwood.	Cornouillier.
<i>Cratægus coccinea.</i>	White thorn.	Aubépine.
do <i>crus-galli.</i>	Cockspur thorn.	do
do <i>tomentosa.</i>	Black thorn.	Épine noire.
<i>Fagus ferruginea.</i>	Beech.	Hêtre.
<i>Fraxinus Americana.</i>	White ash.	Frêne blanc.
do <i>pubescens.</i>	Red ash.	do rouge.
do <i>sambucifolia.</i>	Black ash.	do noir.
do <i>quadrangulata.</i>	Blue ash.	do bleu.
do <i>viridis.</i>	Green ash.	do vert.
<i>Gymnocladus Canadensis.</i>	Coffee tree.	Chicot.
<i>Juglans cinerea.</i>	Butternut.	Noyer tendre.
do <i>nigra.</i>	Black walnut.	do noir.
<i>Juniperus virginiana.</i>	Red cedar.	Cèdre rouge.
<i>Larix Americana.</i>	Tamarack or larch.	Epinette rouge.
<i>Liriodendron tulipifera.</i>	Tulip tree.	Tulipier.
<i>Morus rubra.</i>	Mulberry.	Mârier rouge.
<i>Negundo aceroides.</i>	Ash-leaved maple.	Érable à Giguères.
<i>Nyssa multiflora.</i>	Tupelo.	Tupelos.
<i>Ostrya Virginica.</i>	Ironwood.	Bois de fer.
<i>Picea alba.</i>	White spruce.	Petite épinette.
do <i>nigra.</i>	Black spruce.	Grosse épinette.
<i>Pinus Banksiana.</i>	Banksian or scrub pine.	Pin gris ou cyprés.
do <i>resinosa.</i>	Red or Norway pine.	Pin rouge.
* do <i>rigida.</i>	Pitch pine.	Pin à poix.
do <i>strobus.</i>	White or Weymouth pine.	Pin blanc.
<i>Pirus Americana.</i>	Mountain ash.	Cormier.
do <i>coronaria.</i>	Wild crab tree.	Pommier.

* On Thousand Islands only.

Forest wealth of Canada.

ONTARIO—*Concluded.*

BOTANICAL NAME.	ENGLISH NAME.	FRENCH NAME.
Platanus occidentalis.	Plane or buttonwood.	Platane de Virginie.
Populus balsamifera.	Balsam poplar.	Baumier.
do grandidentata.	Large-toothed poplar.	Peuplier.
do monilifera.	Cottonwood.	Liard.
do tremuloides.	Aspen.	Tremble.
Prunus Americana.	Wild plum.	Prunellier.
do Pennsylvanica.	Red cherry.	Cerisier rouge.
do serotina.	Black cherry.	do noir.
Quercus alba.	White oak.	Chêne blanc.
do bicolor.	Blue oak.	do bleu.
do coccinea.	Scarlet oak.	do écarlette.
do macrocarpa.	Burr oak.	do à gros fruits.
do palustris.	Pin oak.	do de marais.
do prinoides.	Yellow chestnut oak.	do jaune.
do prinus.	Chestnut oak.	do jaune.
do rubra.	Red oak or black oak.	do rouge.
do tinctoria.	Yellow oak.	do noir.
Rhus typhina.	Sumach.	Sumac.
Salix nigra.	Black willow.	Saule noir.
Sassafras officinale.	Sassafras.	Sassafras.
Thuja occidentalis.	White cedar or arbor vitæ.	Cédre blanc.
Tilia Americana.	Basswood.	Bois blanc.
do pubescens.	do	do
Tsuga Canadensis.	Hemlock.	Pruche.
Ulmus Americana.	White elm.	Orme blanc.
do fulva.	Red or slippery elm.	do rouge.
do racemosa.	Rock elm.	do des rochers.

QUEBEC.

As in Ontario the white pine (*P. strobus*) is the most important tree from a commercial point of view. The Ottawa seems to be the centre of the rich pine forests of Canada, and they are as productive on the left bank of the river and on its tributaries on that side as in the Ontario portion of the great valley. The valley of the St. Maurice and its tributaries has also valuable pine forests, but in both these valleys the lumbermen have stripped large districts of the pine of any marketable size, though much still remains. Up the Saguenay and around Lake St. John there was a limited quantity of white pine, which has almost disappeared, and further eastward and northward the banksian pine is the only representative of the family. On the south side of the St. Lawrence, though largely settled and almost wholly private property, some scattered remnants of the old pine forests must still remain, and are being brought to market, as shown by the census returns. As in other provinces, the red pine is found and worked with the white.

The spruce forests of Quebec are also very rich and extensive, and are being more and more exploited every year, adding a constantly growing proportion to the exports. The spruce extends much further eastward than the pine, and beyond the St. Maurice valley and south of the St. Lawrence is the most important timber tree. There is also a large and growing output of tamarack, hemlock and cedar, which are abundant, but again it must be noted that much hemlock is being cut and wasted for its bark. The hardwoods, and especially the birch and maple, also supply a large quantity of valuable timber.

A list of the trees of the province is appended :—

Q U E B E C .

BOTANICAL NAME.	ENGLISH NAME.	FRENCH NAME.
<i>Abies balsamea.</i>	Balsam fir.	Sapin blanc.
<i>Acer dasycarpum.</i>	Silver maple.	Erable blanche.
do <i>Pennsylvanicum.</i>	Striped maple.	do jaspé.
do <i>rubrum.</i>	Red or soft maple.	do rouge.
do <i>saccharinum.</i>	Sugar or rock maple.	do à sucre.
do <i>spicatum.</i>	Mountain maple.	do bâtarde.
<i>Alnus incana.</i>	Alder.	Aune.
<i>Amelanchier Canadensis.</i>	June berry.	Alisier.
<i>Betula lenta.</i>	Black birch.	Bouleau noir.
do <i>lutea.</i>	Yellow birch.	do élançé.
do <i>papyrifera.</i>	Canoe birch.	do à papier, ou à canot.
do <i>populifolia.</i>	Poplar-leaved birch.	do rouge.
<i>Carpinus Caroliniana.</i>	Hornbeam.	Charme.
<i>Carya alba.</i>	Shell-bark hickory.	Noyer tendre.
do <i>amara.</i>	Bitter hickory.	do dur.
<i>Celtis occidentalis.</i>	Sugar berry.	Macocoulier.
<i>Cratægus coccinea.</i>	White thorn.	Aubépine.
<i>Fagus ferruginea.</i>	Beech.	Hêtre
<i>Fraxinus Americana.</i>	White ash.	Frêne blanc.
do <i>pubescens.</i>	Red ash.	do rouge.
do <i>sambucifolia.</i>	Black ash.	do noir.
<i>Juglans cinerea.</i>	Butternut.	Noyer tendre.
<i>Juniperus Virginiana.</i>	Red cedar.	Cèdre rouge.
<i>Larix Americana.</i>	Tamarack or larch.	Epinette rouge.
<i>Ostrya Virginica.</i>	Ironwood.	Bois de fer.
<i>Picea alba.</i>	White spruce.	Petite epinette.
do <i>nigra.</i>	Black spruce.	Grosse do
<i>Pinus Banksiana.</i>	Banksian or scrub pine.	Pin gris ou cyprés.
do <i>resinosa.</i>	Red or Norway pine.	Pin rouge.
do <i>strobus.</i>	White or Weymouth pine.	Pin blanc.
<i>Pirus Americana.</i>	Mountain ash.	Cormier.
<i>Populus balsamifera.</i>	Balsam poplar.	Baumier.
do <i>grandidentata.</i>	Large-toothed poplar.	Peuplier.
do <i>monilifera.</i>	Cottonwood.	Liard.
do <i>tremuloides.</i>	Aspen.	Tremble.
<i>Prunus Americana.</i>	Wild plum.	Prunellier.
do <i>Pennsylvanica.</i>	Red cherry.	Cerisier rouge.
do <i>serotina.</i>	Black cherry.	do noir.
<i>Quercus alba.</i>	White oak.	Chêne blanc.
do <i>macrocarpa.</i>	Burr oak.	do à gros fruits.
do <i>rubra.</i>	Red or black oak.	do rouge.
<i>Salix nigra.</i>	Black willow.	Saule noir.
<i>Thuja occidentalis.</i>	White cedar or arbor vitæ.	Cèdre blanc.
<i>Tilia Americana.</i>	Basswood.	Bois blanc.
<i>Tsuga Canadensis.</i>	Hemlock.	Pruche.
<i>Ulmus Americana.</i>	White elm.	Orme blanc.
do <i>fulva.</i>	Red or slippery elm.	do rouge.
do <i>racemosa.</i>	Rock elm.	do des rochers.

NEW BRUNSWICK.

At one time New Brunswick had rich forests of white and red pine, like Ontario and Quebec, but though trees and even groves of pine are scattered through the woodlands, the supply is sensibly diminished. Pine lumber is still largely exported, but in far greater quantities is that now supplied by the spruce, which is not only abundant in the province, but also of good size and excellent quality. The white cedar or *arbor vitæ* also grows in great profusion, and is largely cut, as are also the hemlock, the larch or *hacmatac*, the balsam and a variety of the fine hardwoods which also flourish in the province.

Forest wealth of Canada.

The following is a list of the trees :—

NEW BRUNSWICK.

BOTANICAL NAME.	ENGLISH NAME.	FRENCH NAME.
<i>Abies balsamea.</i>	Balsam fir.	Sapin blanc.
<i>Acer Pennsylvanicum.</i>	Striped maple.	Érable jaspé.
do <i>rubrum.</i>	Red maple.	do rouge.
do <i>saccharinum.</i>	Sugar maple.	do à sucre.
do <i>spicatum.</i>	Mountain maple.	do bâtarde.
<i>Amelanchier Canadensis.</i>	June berry.	Alisier.
<i>Betula lenta.</i>	Black birch.	Bouleau noir
do <i>lutea.</i>	Yellow birch.	do élané.
do <i>nigra.</i>	Red birch	do rouge
do <i>papyrifera.</i>	Canoe birch.	do à canot.
do <i>populifolia.</i>	Poplar-leaved birch.	do rouge.
<i>Fagus ferruginea.</i>	Beech.	Hêtre.
<i>Fraxinus Americana.</i>	White ash.	Frêne blanc.
do <i>pubescens.</i>	Red ash.	do rouge.
do <i>sambucifolia.</i>	Black ash.	do noir.
<i>Juglans cinerea.</i>	Butternut.	Noyer tendre.
<i>Larix Americana.</i>	Hackmatac or larch.	Epinette rouge.
<i>Ostrya Virginica.</i>	Iron wood.	Bois de fer.
<i>Picea alba.</i>	White spruce.	Petite epinette.
do <i>nigra.</i>	Black spruce.	Grosse epinette.
<i>Pinus Banksiana.</i>	Banksian or scrub pine.	Pin gris, ou cyprés.
do <i>resinosa.</i>	Red or Norfolk pine.	Pin rouge.
do <i>strobus.</i>	White or Weymouth pine.	Pin blanc.
<i>Pirus Americana.</i>	Mountain ash.	Cormier.
<i>Populus balsamifera.</i>	Balsam poplar.	Baumier.
do <i>grandidentata.</i>	Large-toothed poplar.	Peuplier.
do <i>monilifera.</i>	Cotton wood.	Liard.
do <i>tremuloides.</i>	Aspen.	Tremble.
<i>Prunus serotina.</i>	Black cherry.	Cerisier noir.
<i>Quercus macrocarpa.</i>	Burr oak.	Chêne à gros fruits.
do <i>rubra.</i>	Red or black oak.	do rouge.
<i>Salix nigra.</i>	Black willow.	Saule noir.
<i>Thuja occidentalis.</i>	White cedar.	Cédre blanc.
<i>Tilia Americana.</i>	Bass wood.	Bois blanc.
<i>Tsuga Canadensis.</i>	Hemlock.	Pruche.
<i>Ulmus Americana.</i>	White elm.	Orme blanc.

NOVA SCOTIA.

The destruction of the pine has advanced even further in Nova Scotia than in the other provinces, and what remains is almost wholly on private property. Its place both for home use and for export, is filled in a great measure by the spruce, which is abundant and good. Hackmatac and hemlock are also being largely used, and balsam is coming more into notice. Unlike the adjoining province, Nova Scotia has no white cedar, which is absent, or only represented by a few rare trees near the Bay of Fundy. Several species of hardwood grow abundantly, and are utilized both for local needs and foreign commerce.

The following is the list of trees :—

NOVA SCOTIA.

BOTANICAL NAME.	ENGLISH NAME.	FRENCH NAME.
<i>Abies balsamea.</i>	Balsam fir.	Sapin blanc.
<i>Acer Pennsylvanicum.</i>	Striped maple.	Érable jaspé.
do <i>rubrum.</i>	Red maple.	do rouge.
do <i>saccharinum.</i>	Sugar maple.	do à sucre.
do <i>spicatum.</i>	Mountain maple.	do bâtarde.
<i>Amelanchier Canadensis.</i>	June berry.	Alisier.
<i>Betula lenta.</i>	Black birch.	Bouleau noir.
do <i>lutea.</i>	Yellow birch.	do élançé.
do <i>papyrifera.</i>	Canoe birch.	do à canot.
do <i>populifolia.</i>	Poplar-leaved birch.	do rouge.
<i>Fagus ferruginea.</i>	Beech.	Hêtre.
<i>Fraxinus Americana.</i>	White ash.	Frêne blanc.
do <i>pubescens.</i>	Red ash.	do rouge.
do <i>sambucifolia.</i>	Black ash.	do noir.
<i>Juglans cinerea.</i>	Butternut.	Noyer tendre.
<i>Larix Americana.</i>	Tamarack or larch.	Epinette rouge.
<i>Ostrya Virginica.</i>	Iron wood.	Bois de fer.
<i>Picea alba.</i>	White spruce.	Petite épinette.
do <i>nigra.</i>	Black spruce.	Grosse épinette.
<i>Pinus banksiana.</i>	Banksian or scrub pine.	Pin gris or cyprès.
do <i>resinosa.</i>	Red or Norway pine.	Pin rouge.
do <i>strobus.</i>	White or Weymouth pine.	Pin blanc.
<i>Pirus Americana.</i>	Mountain ash.	Cormier.
<i>Populus balsamifera.</i>	Balsam poplar.	Baumier.
do <i>grandidentata.</i>	Large-toothed poplar.	Peuplier.
do <i>monilifera.</i>	Cotton wood.	Liard.
do <i>tremuloides.</i>	Aspen.	Tremble.
<i>Prunus serotina.</i>	Black cherry.	Cerisier noir.
<i>Quercus macrocarpa.</i>	Burr oak.	Chêne à gros fruits.
do <i>rubra.</i>	Red or black oak.	do rouge.
<i>Salix nigra.</i>	Black willow.	Saule noir.
* <i>Thuja occidentalis.</i>	White cedar.	Cèdre blanc.
<i>Tilia Americana.</i>	Bass wood.	Bois blanc.
<i>Tsuga Canadensis.</i>	Hemlock.	Pruche.
<i>Ulmus Americana.</i>	White elm.	Orme blanc.

* Only along Bay of Fundy.—Rare.

PRINCE EDWARD ISLAND.

A great part of this island was once thickly wooded, but at present it produces no more timber and lumber than it requires. The extent of Crown lands remaining unalienated is small and it is not first class forest. Some pine still exists and with the other coniferous trees and some excellent hardwood of various kinds, supplies the local demand. The white cedar, if indigenous, is very rare.

Forest wealth of Canada.

The following is the list of trees :—

PRINCE EDWARD ISLAND.

BOTANICAL NAME.	ENGLISH NAME.	FRENCH NAME.
<i>Abies balsamea.</i>	Balsam fir.	Sapin blanc.
<i>Acer Pennsylvanicum.</i>	Striped maple.	Erable jaspé.
do <i>rubrum.</i>	Red maple.	do rouge.
do <i>saccharinum.</i>	Sugar maple.	do à sucre.
do <i>spicatum.</i>	Mountain maple.	do bâtarde.
<i>Betula lenta.</i>	Black birch.	Bouleau noir.
do <i>lutea.</i>	Yellow birch.	do élançé.
do <i>papyrifera.</i>	Canoe Birch.	do à canot.
do <i>populifolia.</i>	Poplar-leaved birch.	do rouge.
<i>Fagus ferruginea.</i>	Beech.	Hêtre.
<i>Fraxinus Americana.</i>	White ash.	Frêne blanc.
do <i>sambucifolia.</i>	Black ash.	do noir.
<i>Larix Americana.</i>	Larch.	Epinette rouge.
<i>Ostrya Virginica.</i>	Iron wood.	Bois de fer.
<i>Picea alba.</i>	White spruce.	Petite epinette.
do <i>nigra.</i>	Black spruce.	Grosse epinette.
<i>Pinus strobus.</i>	White pine.	Pin blanc.
<i>Pirus Americana.</i>	Mountain ash.	Cormier.
<i>Populus balsamifera.</i>	Balsam poplar.	Baumier.
do <i>grandidentata.</i>	Large-toothed poplar.	Peuplier.
do <i>tremuloides.</i>	Aspen.	Tremble.
<i>Salix nigra.</i>	Black willow.	Saule noir.
<i>Tilia Americana.</i>	Bass wood.	Bois blanc.
<i>Tsuga Canadensis.</i>	Hemlock.	Pruche.
<i>Ulmus Americana.</i>	White elm.	Orme blanc.

MANITOBA AND THE TERRITORIES.

The great western region, of Canada, from Lake of the Woods to the Rocky Mountains, and from the international boundary to the Arctic Ocean, contains a vast extent of prairie, but it is by no means destitute of forest and woodland. Even the prairie districts are not altogether treeless, for the rivers and streams are fringed with poplars of large size and good timber, with other trees, and the ridges and hills are timbered with spruce, black pine (cyprès) poplars, &c. These trees supply the local saw-mills, and are used by the people in the districts now being settled, supplemented however, by lumber brought into the country from east and west.

North of the prairie region is a great forest largely composed of spruce, of the same species as those in eastern Canada, but often attaining a greater size and superior quality. The balsam fir, the Banksian pine, the poplars and other trees also contribute their quota to this great northern forest, which having a trend northwestward, at the Mackenzie River almost reaches the Arctic Ocean. As the waters run northerly and there are no railways, this forest has not yet been utilized to supply the settlers to the southward.

On the east side Manitoba touches the forest region of eastern Canada, and includes some of its peculiar trees. Thus the white and red pine, the white cedar, the basswood, the maples and other trees of Ontario and Quebec, extend sparingly into the extreme southwest corner of Manitoba till their line of limit turns to the south.

On the west side, on the other hand, the territories bordering on the Rocky Mountains whose summits form the dividing line, have some of the trees of the British Columbian interior, such as the Douglas fir, the mountain pine, the spruces, &c. These are being utilized by the lumbermen and afford a welcome supply to the dwellers on the adjacent prairies.

Again in the western part of Manitoba and extending more or less into the adjacent territories, is a little group of trees found neither to the eastward, westward or northward. These are the ash-leaved maple (*Negundo aceroides*) and the green ash, while the burr oak reappears here after a wide interval, and they are of great value to the district in which they grow. The ash-leaved maple is also one of the favourite trees with settlers on the prairies who are being wise enough to make plantations for the shelter of their homes and their crops.

The following is the list of trees :—

MANITOBA AND NORTH-WEST TERRITORIES.

BOTANICAL NAME.	ENGLISH NAME.	FRENCH NAME.
<i>Abies balsamea.</i>	Balsam fir.	Sapin blanc.
do <i>subalpina.</i>	Alpine balsam fir.	do des monts.
<i>Acer spicatum.</i>	Mountain maple.	Erable bâtarde.
<i>Betula papyrifera.</i>	Canoe birch.	Bouleau à canot.
<i>Fraxinus pubescens.</i>	Red ash.	Frêne rouge.
do <i>viridis.</i>	Green ash.	do vert.
<i>Larix Americana.</i>	Larch or tamarack.	Epinette rouge.
do <i>Lyallii.</i>	Mountain larch.	do des monts.
<i>Negundo aceroides.</i>	Ash-leaved maple.	Erable à giguières.
<i>Picea alba.</i>	White spruce.	Petite epinette.
do <i>Engelmannii.</i>	Western black spruce.	Epinette noir.
do <i>nigra.</i>	Black spruce.	Grosse epinette.
<i>Pinus albicaulis.</i>	White bark pine.	Pin blanc.
do <i>Banksiana.</i>	Banksian pine.	Pin gris ou cyprés.
do <i>flexilis.</i>	Mountain white pine.	Pin blanc.
do <i>Murrayana.</i>	Black pine or cypress.	Cyprés.
do <i>resinosa.</i>	Red pine.	Pin rouge.
do <i>strobus.</i>	White pine.	Pin blanc.
<i>Pirus Americana.</i>	Mountain ash.	Cormier.
<i>Populus angustifolia.</i>	Black cottonwood.	Liard noir.
do <i>balsamifera.</i>	Balsam poplar.	Baumier.
do <i>monilifera.</i>	Cottonwood.	Liard.
do <i>tremuloides.</i>	Aspen.	Tremble.
do <i>trichocarpa.</i>	Black cottonwood.	Liard.
<i>Pseudotsuga Douglasii.</i>	Douglas fir.	Pin d'Oregon.
<i>Quercus macrocarpa.</i>	Burr oak.	Chêne à gros fruits.
<i>Salix flavescens.</i>	Willow.	Saule.
do <i>nigra.</i>	Black willow.	do noir.
<i>Thuja occidentales.</i>	White cedar.	Cèdre blanc.
<i>Tilia Americana.</i>	Basswood.	Bois blanc.
<i>Ulmus Americana.</i>	White elm.	Orme blanc.

BRITISH COLUMBIA.

Of all the provinces and territories of Canada, British Columbia is, as a whole, the most densely wooded with valuable timber of great variety. It does not possess the king of Canadian trees, the unrivalled white pine (*P. strobus*), but, in other respects, it surpasses the rest of the Dominion. The Douglas fir is the most important timber tree, growing abundantly and to an enormous size on Vancouver Island on the mainland shore, and in places extending inland, even as we have seen, to the eastern slope of the Rockies. This is the main object of the lumbermen, and besides the domestic use, is exported in great quantities, being widely known in commerce as "Oregon pine." It makes strong and large building timber, admirable masts, and good, if rather coarse, lumber. The gigantic cedar also growing along the sea-coast, is much used, especially for shingles. The yellow cypress, another sea-coast tree extending farther north, is also of large size and its wood is of fine grain. The white mountain pine is also largely

Forest wealth of Canada.

used, where accessible, being the nearest substitute for our white pine (*P. strobus*), though its lumber is not so good, and the same may be said of the western yellow pine, another inland tree. The spruces are especially valuable, abundant and widely disseminated. The spruce of Eastern Canada, which crosses the continent from ocean to ocean, extends northward to the boundary of the province, and in its far western habitat, is even larger and better than in the east. The western black or Engelmann's spruce, an inland tree, is even superior in size and quality, as is also the Sitka spruce of the coast. There are various other valuable coniferous trees. The poplars, in some places, are gigantic. The hardwoods are well represented, among them by an oak and some maples peculiar to this coast. The climate seems so well suited to tree growth that even those that are little better than shrubs elsewhere, become of importance and value, as the red alder, the dogwood, the arbutus, the crab apple, &c.

The following is the list of trees :—

BRITISH COLUMBIA.

BOTANICAL NAME.	ENGLISH NAME.	FRENCH NAME.
<i>Abies amabilis</i> .	White fir.	Sapin blanc.
do <i>grandis</i> .	Western white fir.	Gros sapin.
do <i>subalpina</i> .	Mountain balsam.	Sapin des monts.
<i>Acer macrophyllum</i> .	Large-leaved maple.	Erable.
do <i>circinatum</i> .	Vine maple.	do
<i>Alnus rubra</i> .	Red alder.	Aune rouge.
<i>Arbutus Menziesii</i> .	Arbutus.	Arbute.
<i>Betula occidentalis</i> .	Western birch.	Bouleau.
do <i>papyrifera</i> .	Canoe birch.	do à canot.
<i>Cornus Nuttallii</i> .	Western dogwood.	Cornouillier.
<i>Juniperus Virginiana</i> .	Red cedar.	Cèdre rouge.
<i>Larix Americana</i> .	American larch.	Epinette rouge.
do <i>Lyallii</i> .	Mountain larch.	do des monts.
do <i>occidentalis</i> .	Western larch.	do rouge.
<i>Picea alba</i> .	White spruce.	Petite epinette.
do <i>Engelmannii</i> .	Western black spruce.	Epinette noir.
do <i>nigra</i> .	Black spruce.	Grosse epinette.
do <i>Sitchensis</i> .	Western white spruce.	Epinette blanche.
<i>Pinus albicaulis</i> .	White bark pine.	Pin blanc.
do <i>contorta</i> .	Scrub pine.	Cyprés.
do <i>monticola</i> .	White mountain pine.	Pin blanc.
do <i>Murrayana</i> .	Black pine.	Cyprés.
do <i>ponderosa</i> .	Yellow pine.	Pin jaune ou rouge.
<i>Pirus rivularis</i> .	Western crab apple.	Pommier.
<i>Populus balsamifera</i> .	Balsam poplar.	Baumier.
do <i>monilifera</i> .	Cottonwood.	Liard.
do <i>tremuloides</i> .	Aspen.	Tremble.
do <i>trichocarpa</i> .	Cottonwood.	Liard.
<i>Prunus emarginata</i> .	Cherry.	Cerisier.
do <i>mollis</i> .	do	do
<i>Pseudotsuga Douglasii</i> .	Douglas fir.	Pin d'Oregon.
<i>Quercus Garryana</i> .	Western white oak.	Chêne.
<i>Salix lancifolia</i> .	Lance-leaved willow.	Saule.
do <i>lasiandra</i> .	Willow.	do
<i>Taxus brevifolia</i> .	Western yew.	If.
<i>Thuya gigantea</i> .	Giant cedar.	Grand cèdre.
do <i>excelsa</i> .	Yellow cypress or cedar.	Cèdre jaune.
<i>Tauga Mertensiana</i> .	Western hemlock.	Pruche.
do <i>Pattoniana</i> .	Alpine hemlock.	do

DOMINION OF CANADA.

The following is a list of the indigenous trees of Canada with their botanical and English names and the provinces in which they are found.

Some foreign trees are so thoroughly acclimatized and so widespread that they might almost be included in the list. The most noteworthy of these exotic trees are :

ACCLIMATIZED TREES.

BOTANICAL NAME.	ENGLISH NAME.	FRENCH NAME.
<i>Abies excelsa.</i>	Norway spruce.	Epinette de Norvège.
<i>Æsculus hippocastanea.</i>	Horse chesnut.	Marronnier.
<i>Populus alba.</i>	White poplar.	Peuplier argenté.
do <i>pyramidalis.</i>	Lombardy poplar.	do de lombardie.
<i>Robinia pseudacacia.</i>	Locust tree.	Acacia.
<i>Salix alba.</i>	White willow.	Saule blanc.

and others might be added to the list.

In this connection it may be noticed that the ash-leaved maple or box elder (*Negundo aceroides*), of Manitoba and the Territories, is being largely planted in the other provinces, while plantations of some of the forest trees of Eastern Canada are being made on the prairies.

The list of Canadian trees has been made as complete as possible, but probably there are additions yet to be made from British Columbia, and the habitat of various species may be extended to other provinces than those named.

I am indebted to Prof. John Macoun, of the Geological Survey, for the careful revision given by him to these lists.

TREES OF CANADA.

Botanical Name.	English Name.	Distribution.
<i>Abies amabilis</i>	White fir.....	British Columbia.
do <i>balsamea</i>	Balsam fir.....	All the provinces, except British Columbia.
do <i>grandis</i>	Western white fir.....	British Columbia.
do <i>subalpina</i>	Mountain balsam.....	do and Territories.
<i>Acer circinatum</i>	Vine maple.....	do
do <i>dasycarpum</i>	Silver maple.....	Ontario and Quebec.
do <i>nigrum</i>	Black maple.....	Ontario.
do <i>macrophyllum</i>	Large-leaved maple.....	British Columbia.
do <i>Pennsylvanicum</i>	Striped maple.....	Ont., Que., New Brunswick, Nova Scotia, P.E. Island.
do <i>rubrum</i>	Red or soft maple.....	do do do
do <i>saccharinum</i>	Sugar or rock maple.....	do do do
do <i>spicatum</i>	Mountain maple.....	Ont., Que., N. Brunswick, N.S., P.E.I., Man. & Ter.
<i>Alnus incana</i>	Alder.....	Ontario and Quebec.
do <i>rubra</i>	Red alder.....	British Columbia.
<i>Amelanchier Canadensis</i> .	June berry.....	Ontario, Quebec, New Brunswick and Nova Scotia.
<i>Arbutus Menziesii</i>	Arbutus.....	British Columbia.
<i>Asimina triloba</i>	Papaw.....	Ontario.
<i>Betula lenta</i>	Black birch.....	Ont., Que., New Brunswick, Nova Scotia, P.E. Island.
do <i>lutea</i>	Yellow birch.....	Ont., Que., N. Brunswick, N.S., P.E.I., & N.W. Ter.
do <i>occidentalis</i>	Western birch.....	British Columbia.
do <i>papyrifera</i>	Canoe birch.....	All the provinces.
do <i>populifolia</i>	Poplar-leaved birch.....	Que., New Brunswick, Nova Scotia and P.E. Island.
<i>Carpinus Caroliniana</i>	Hornbeam.....	Ontario and Quebec.
<i>Carya alba</i>	Shell bark hickory.....	do
do <i>amara</i>	Bitter hickory.....	do
do <i>microcarpa</i>	Small fruit hickory.....	Ontario.
do <i>porcina</i>	Pignut hickory.....	do
do <i>tomentosa</i>	White heart hickory.....	do and Quebec.
<i>Castanea Americana</i>	Chestnut.....	do
<i>Celtis occidentalis</i>	Sugar berry.....	do and Quebec.
<i>Cornus Florida</i>	Dogwood.....	do
do <i>Nuttallii</i>	Western dogwood.....	do
<i>Crataegus coccinea</i>	White thorn.....	do and Quebec.
do <i>crus-galli</i>	Cockspur thorn.....	do
do <i>tomentosa</i>	Black thorn.....	do
<i>Fagus ferruginea</i>	Beech.....	Ont., Que., N. Brunswick, Nova Scotia & P.E. Island.
<i>Fraxinus Americana</i>	White ash.....	do do do
do <i>pubescens</i>	Red ash.....	do do do
do <i>sambucifolia</i>	Black ash.....	do do do
do <i>quadrangulata</i>	Blue ash.....	Ontario.
do <i>viridis</i>	Green ash.....	do Manitoba and Territories.

Forest wealth of Canada.

TREES OF CANADA— *Concluded.*

Botanical Name.	English Name.	Distribution.
<i>Gymnocladus Canadensis</i>	Coffee tree.....	Ontario.
<i>Juglans cinerea</i>	Butternut.....	do Quebec, New Brunswick and Nova Scotia.
do <i>nigra</i>	Black walnut.....	do
<i>Juniperus Virginiana</i>	Red cedar.....	do do and British Columbia.
<i>Larix Americana</i>	Tamarack or larch.....	All the provinces.
do <i>Lyallii</i>	Mountain larch.....	British Columbia and Territories.
do <i>occidentalis</i>	Western larch.....	do
<i>Liriodendron tulipifera</i>	Tulip tree.....	Ontario.
<i>Morus rubra</i>	Mulberry.....	do
<i>Negundo aceroides</i>	Ash-leaved maple.....	do Manitoba and Territories.
<i>Nissa multiflora</i>	Tupelo.....	Ontario.
<i>Ostrya Virginica</i>	Iron wood.....	Ont., Que., N. Brunswick, Nova Scotia & P.E. Island.
<i>Picea alba</i>	White spruce.....	All the provinces.
do <i>Engelmannii</i>	Engelmann's black spruce.....	British Columbia and Manitoba.
do <i>nigra</i>	Black spruce.....	All the provinces.
do <i>Sitchensis</i>	Western white spruce.....	British Columbia.
<i>Pinus albicaulis</i>	White bark pine.....	do and Territories.
do <i>Banksiana</i>	Banksian or scrub pine.....	Ont., Que., N. Brunswick, Nova Scotia & Man. & Ter.
do <i>contorta</i>	Scrub pine.....	British Columbia.
do <i>flexilis</i>	Rocky Mountain pine.....	Territories.
do <i>monticola</i>	White do.....	British Columbia.
do <i>Murrayana</i>	Black pine or cypres.....	do Manitoba and Territories.
do <i>ponderosa</i>	Yellow pine.....	do
do <i>resinosa</i>	Red or Norway pine.....	Ont., Que., N. Brunswick, N. S. (Man. S.W. corner.)
do <i>rigida</i>	Pitch pine.....	Ontario.
do <i>strobus</i>	White or Weymouth pine.....	Ont., Que., N.B., N.S., P.E.I., (Man. S.W. corner.)
<i>Pirus Americana</i>	Mountain ash.....	do do do do and Manitoba.
do <i>coronaria</i>	Crab apple.....	Ontario.
do <i>rivularis</i>	Western crab apple.....	British Columbia.
<i>Platanus occidentalis</i>	Plane or button wood.....	Ontario.
<i>Populus angustifolia</i>	Black cotton wood.....	Territories.
do <i>balsamifera</i>	Balsam poplar.....	All the provinces.
do <i>grandidentata</i>	Large-toothed poplar.....	Ont., Que., N. Brunswick, Nova Scotia & P.E. Island.
do <i>monilifera</i>	Cotton wood.....	All the provinces, except Prince Edward Island.
do <i>tremuloides</i>	Aspen.....	do
do <i>trichocarpa</i>	Cotton wood.....	British Columbia, Manitoba and Territories.
<i>Prunus Americana</i>	Wild plum.....	Ontario and Quebec.
do <i>emarginata</i>	Western cherry.....	British Columbia.
do <i>mollis</i>	Cherry.....	do
do <i>Pennsylvanica</i>	Red cherry.....	Ontario and Quebec.
do <i>serotina</i>	Black cherry.....	Ontario, Quebec, N. Brunswick and Nova Scotia.
<i>Pseudotsuga Douglasii</i>	Douglas fir.....	British Columbia and Territories.
<i>Quercus alba</i>	White oak.....	Ontario and Quebec.
do <i>bicolor</i>	Blue oak.....	do
do <i>coccinea</i>	Scarlet oak.....	do
do <i>Garryana</i>	Western white oak.....	British Columbia.
do <i>macrocarpa</i>	Burr oak.....	Ont., Que., N. Brunswick, Nova Scotia, Man. & Ter.
do <i>palustris</i>	Pin oak.....	Ontario.
do <i>prinoides</i>	Yellow chestnut oak.....	do
do <i>prinus</i>	Chestnut oak.....	do
do <i>rubra</i>	Red or black oak.....	do Quebec, New Brunswick, and Nova Scotia.
do <i>tinctoria</i>	Yellow oak.....	Ontario.
<i>Rhus typhina</i>	Sumach.....	do Que., N. B., N. S. and P.E.I.
<i>Salix flavescens</i>	Willow.....	Manitoba and Territories.
do <i>lanceifolia</i>	Lance-leaved willow.....	British Columbia.
do <i>lasiandra</i>	do.....	do
do <i>nigra</i>	Black willow.....	Ont., Que., N. Brunswick, Nova Scotia, P.E.I. & Man.
<i>Sassafras officinale</i>	Sassafras.....	Ontario.
<i>Taxus brevifolia</i>	Western Yew.....	British Columbia.
<i>Thuja excelsa</i>	Yellow cypress or cedar.....	do
do <i>gigantea</i>	Giant cypress.....	do
do <i>occidentalis</i>	White cedar or arbor vitae.....	Ont., Que., N. Brunswick, Nova Scotia and Man.
<i>Tilia Americana</i>	Bass wood.....	Ont., Que., N. Brunswick, N.S., P.E.I. and Man.
do <i>pubescens</i>	do.....	Ontario.
<i>Tsuga Canadensis</i>	Hemlock.....	Ont., Que., N. Brunswick, Nova Scotia & P.E. Island.
do <i>Mertensiana</i>	Western hemlock.....	British Columbia.
do <i>Pattonia</i>	Alpine hemlock.....	do
<i>Ulmus Americana</i>	White elm.....	Ont., Que., N. Brunswick, N.S., P.E.I. Man. and Ter.
do <i>fulva</i>	Red or slippery elm.....	Ontario and Quebec.
do <i>racemosa</i>	Rock elm.....	do

APPENDIX "J."

WOODS IN CANADA—STRENGTH, WEIGHT, &c.

Authoritative experiments to determine the strength, weight, &c., of our woods have not been made in Canada.

Mr. Sargent, in charge of the forestry branch of the United States census of 1880, caused investigations to be made by Mr. Sharples of the woods of North America (excluding Mexico), and the following tables are compiled from the data thus given for the species found in Canada.

In most cases the specimens were taken from the butt end of the tree, free from sap or knots; they may be regarded as representing the best wood that could be obtained from the tree. The value for construction was obtained by experiments made with the United States testing machine at Watertown arsenal.

The specimens used for specific gravity determinations were made 100 millimeters long and about 35 millimeters square and were dried at 100° centigrade till they ceased to lose weight.

The relative fuel values were obtained by deducting the percentage of ash from the specific gravity and were founded on the hypothesis that the real value of the combustible material in all woods is the same.*

The specimens tested for the purpose of determining the strength of the wood produced by the different trees were cut, with a few exceptions, before March, 1881, and were slowly and carefully seasoned.

Those used in determining the resistance to transverse strain were made 4 centimeters square, and long enough to give the necessary bearing upon the supports. Hydraulic pressure was applied by means of an iron rod 12 millimeters in radius acting midway between the supports.

The specimens tested by longitudinal compression were 4 centimeters square and 32 centimeters (8 diameters) long. They were placed between the platforms of the machine and pressure was gradually applied till they failed. The figures given represent the number of kilograms required to cause failure.

The specimens tested under pressure applied perpendicularly to the fibres were 4 centimeters square and 16 centimeters long. They were placed upon the platform of the machine and indented with an iron punch 4 centimeters square on its face, covering the entire width of the specimen, and one quarter of its length in the centre.

In the following table the coefficient of elasticity is derived from the second deflection, the measurements being taken in millimeters and the weight in kilograms.

The ultimate transverse strength is the force applied to the middle of the stick required to break a stick 4 centimeters square and one meter between the supports.

In the compression tests the surface exposed to pressure was 4 centimeters square. To give the pressure on a square centimeter these results must be divided by 16.

* The United States census report remarks: "In burning wood, however, various circumstances affect its value; few fire-places are constructed to fully utilize the fuel value of resinous woods, and carbon escapes unconsumed in the form of smoke. Pine, therefore, which although capable of yielding more heat than oak or hickory, may in practice yield considerably less, the pine losing both carbon and hydrogen in the form of smoke, while hickory or oak, burning with a smokeless flame, is practically entirely consumed. The ash in a wood, being non-combustible, influences its fuel value in proportion to the amount. The state of dryness of the wood also has much influence upon its fuel value, though in a less degree than is generally supposed."

Forest wealth of Canada.

WOODS OF CANADA.

TABLE of Averages, Specific Gravity, Fuel Value and Strength.—(Compiled from U. S. Census Returns, 1880.)

Botanical Name.	English Name.	Specific gravity.	Approximate relative fuel value.	Coefficient of elasticity kilograms on millimeters.	Ultimate strength in kilograms.	Ultimate resistance to longitudinal crushing in kilograms.	Resistance to indentation to 1.27 millimeters in kilograms.
<i>Abies amabilis</i>	White fir.....	0.4228	42.18	1,260	338	7,480	1,029
do <i>balsamea</i>	Balsam fir.....	0.3819	38.02	819	220	5,851	1,202
do <i>grandis</i>	Western white fir.....	0.3545	35.08	958	211	6,255	810
do <i>subalpina</i>	Mountain balsam.....	0.3476	34.61	762	202	4,829	1,015
<i>Acer circinatum</i>	Vine maple.....	0.6660	66.34	718	327	7,349	3,205
do <i>dasycarpum</i>	Silver do.....	0.5269	52.52	1,110	435	7,711	2,899
do <i>nigrum</i>	Black do.....	0.6915	68.66	1,027	410	8,803	4,149
do <i>macrophyllum</i>	Large-leaved maple.....	0.4909	48.83	780	292	6,100	2,597
do <i>Pennsylvanicum</i>	Striped do.....	0.5299	.....	.....	.....	.....	.....
do <i>rubrum</i>	Soft or red do.....	0.6178	61.65	943	346	7,402	2,795
do <i>saccharinum</i>	Sugar or rock do.....	0.6912	68.75	1,465	490	9,907	4,019
do <i>spicatum</i>	Mountain do.....	0.5330	.....	.....	.....	.....	.....
<i>Alnus incana</i>	Black alder.....	0.4607	.....	.....	.....	.....	.....
do <i>rubra</i>	Red do.....	0.4813	47.93	1,060	346	6,644	1,870
<i>Amelanchier Canadensis</i>	June berry.....	0.7838	77.95	1,197	483	10,712	4,483
<i>Arbutus Menziesii</i>	Arbutus.....	0.7052	70.24	838	387	8,034	3,322
<i>Asimina triloba</i>	Papaw.....	0.3969	39.61	482	167	3,395	1,098
<i>Betula lenta</i>	Black birch.....	0.7617	75.97	1,432	519	9,907	3,615
do <i>lutea</i>	Yellow do.....	0.6553	65.34	1,618	533	9,907	2,581
do <i>occidentalis</i>	Western do.....	0.6030	60.12	924	344	6,260	2,459
do <i>papyrifera</i>	Canoe do.....	0.5955	59.40	1,306	454	7,781	2,083
do <i>populifolia</i>	Poplar-leaved birch.....	0.5760	57.43	730	332	5,564	2,073
<i>Carpinus Caroliniana</i>	Hornbeam.....	0.7286	72.26	1,149	490	7,969	3,405
<i>Carya alba</i>	Shell-bark hickory.....	0.8372	83.11	1,390	512	10,107	4,344
do <i>amara</i>	Bitter do.....	0.7552	74.74	1,030	470	8,357	3,878
a do <i>microcarpa</i>	Small fruit do.....	.....	.....	.....	.....	.....	.....
do <i>percina</i>	Pignut do.....	0.8217	81.36	1,014	466	9,232	4,822
do <i>tomentosa</i>	White heart do.....	0.8218	81.29	1,150	482	9,485	4,429
<i>Castanea Americana</i>	Chestnut.....	0.4504	44.95	856	297	6,106	1,698
<i>Celtis occidentalis</i>	Sugar berry.....	0.7287	72.08	685	337	6,739	3,472
<i>Cornus Florida</i>	Dogwood.....	0.8153	80.98	821	386	8,553	4,875
do <i>Nuttallii</i>	Western dogwood.....	0.7481	74.44	1,081	423	10,603	3,883
<i>Crataegus coccinea</i>	White thorn.....	0.8618	.....	.....	.....	.....	.....
do <i>crus-galli</i>	Cockspur do.....	0.7194	71.55	664	279	6,884	3,368
do <i>tomentosa</i>	Black do.....	0.7633	75.96	732	303	7,117	3,844
<i>Fagus ferruginea</i>	Beach.....	0.6883	68.48	1,210	490	7,550	3,145
<i>Fraxinus Americana</i>	White ash.....	0.6543	65.16	1,015	367	7,535	2,745
do <i>pubescens</i>	Red do.....	0.6251	62.35	812	371	6,960	3,272
do <i>sambucifolia</i>	Black do.....	0.6318	62.72	872	345	6,766	3,106
do <i>quadrangulata</i>	Blue do.....	0.7184	74.60	774	346	7,980	3,322
do <i>viridis</i>	Green do.....	0.7117	70.71	903	382	7,711	3,521
<i>Gymnocladus Canadensis</i>	Coffee tree.....	0.6934	68.98	1,048	329	6,406	2,560
<i>Juglans cinerea</i>	Butternut.....	0.4086	40.66	812	255	6,270	1,488
do <i>nigra</i>	Black walnut.....	0.6115	60.91	1,092	365	9,178	3,140
<i>Juniperus Virginiana</i>	Red cedar.....	0.4926	49.11	670	316	6,750	2,376
<i>Larix Americana</i>	Tamarack.....	0.6236	62.16	1,261	384	8,763	1,675
b do <i>Lyallii</i>	Mountain larch.....	.....	.....	.....	.....	.....	.....
do <i>occidentalis</i>	Western larch.....	0.7407	74.00	1,658	524	11,023	2,395
<i>Liriodendron tulipifera</i>	Tulip tree.....	0.4230	42.20	926	280	5,953	1,296
<i>Morus rubra</i>	Red mulberry.....	0.5898	58.56	824	331	6,721	2,805
<i>Negundo aceroides</i>	Ash-leaved maple.....	0.4323	42.82	582	226	5,151	1,781
c <i>Nissa multiflora</i>	Tupelo.....	0.6353	63.66	818	360	7,497	3,131
<i>Ostrya Virginica</i>	Ironwood.....	0.8284	82.42	1,373	484	8,669	3,696
<i>Picea alba</i>	White spruce.....	0.4051	40.38	1,023	319	5,489	1,117

a *Carya microcarpa* is treated by Sargent as a variety of *Carya alba*, and was not distinguished in the tests from that species, which see above.

b. *Larix Lyallii*, called "a rare and local species of the Northern Rocky Mountains," was not tested. In British Columbia it is more plentiful.

c. *Nissa multiflora* is included by Sargent in *N. sylvatica*, a species which embraces various forms.

WOODS OF CANADA—*Concluded.*

TABLE of Averages, Specific Gravity, Fuel Value and Strength.—(Compiled from U. S. Census Returns, 1880.)

Botanical Name.	English Name.	Specific gravity.	Approximate relative fuel value.	Coefficient of elasticity kilograms on millimeters.	Ultimate transverse strength in kilograms.	Ultimate resistance to longitudinal crushing in kilograms.	Resistance to indentation to 1-27 millimeters in kilograms.
<i>Picea Engelmanni</i>	Engelmann's spruce	0.3449	38.38	808	245	4,271	1,217
do <i>nigra</i>	Black spruce	0.4584	45.71	1,100	318	6,520	1,240
do <i>Sitchensis</i>	Western white spruce	0.4287	42.80	990	277	5,653	1,160
<i>Pinus albicaulis</i>	White bark pine	0.4165	41.54	512	249	5,296	1,716
do <i>Banksiana</i>	Banksian or scrub pine	0.4761	47.50	942	278	6,329	1,609
do <i>contorta</i>	Scrub pine	0.5815	58.04	1,585	423	9,868	2,382
do <i>flexilis</i>	Rocky Mountain pine	0.4358	43.42	676	266	5,591	1,727
do <i>monticola</i>	White mountain pine	0.3908	38.99	950	260	5,349	1,071
do <i>Murrayana</i>	Black pine or cypress	0.4096	40.83	771	241	5,328	1,379
do <i>ponderosa</i>	Yellow pine	0.4715	46.99	887	307	6,037	1,719
do <i>resinosa</i>	Red or Norway pine	0.4854	48.41	1,132	341	7,274	1,353
do <i>rigida</i>	Pitch pine	0.5151	51.39	581	314	5,687	2,123
do <i>strobus</i>	White or Weymouth pine	0.3854	38.47	851	267	6,219	1,194
<i>Pirus coronaria</i>	Crab apple	0.7048	70.11	642	207	6,706	3,999
do <i>rivularis</i>	Western crab apple	0.8316	.....	.....	.....	.....	.....
<i>Platanus occidentalis</i>	Plane or buttonwood	0.5678	56.52	864	271	7,207	2,645
<i>Populus angustifolia</i>	Black cottonwood	0.3912	38.81	458	171	4,332	1,225
do <i>balsamifera</i>	Balsam poplar	0.3635	36.11	857	235	5,126	1,202
do <i>grandidentata</i>	Large-tooth poplar	0.4632	46.11	963	308	5,727	994
do <i>monilifera</i>	Cottonwood	0.3839	38.53	994	328	5,651	1,327
do <i>tremuloides</i>	Aspen	0.4032	40.11	814	289	5,285	1,281
do <i>trichocarpa</i>	Cottonwood	0.3814	37.66	1,117	284	6,243	1,018
<i>Prunus Americana</i>	Wild plum	0.7215	72.02	827	369	9,419	3,405
do <i>mollis</i>	Western cherry	0.4502	44.93	861	290	7,507	1,280
do <i>Pennsylvanica</i>	Red cherry	0.5023	.....	.....	.....	.....	.....
do <i>serotina</i>	Black cherry	0.5822	58.14	852	354	8,746	3,269
<i>Pseudotsuga Douglasii</i>	Douglas fir	0.5157	51.53	1,283	376	8,289	1,608
<i>Quercus alba</i>	White oak	0.7470	74.39	971	386	8,183	3,388
do <i>bicolor</i>	Blue oak	0.7662	76.18	906	388	7,850	3,534
do <i>coccinea</i>	Scarlet oak	0.7405	73.91	1,085	450	8,074	3,224
do <i>Garryana</i>	Western white oak	0.7453	74.24	811	375	7,957	3,846
do <i>macrocarpa</i>	Burr oak	0.7453	74.06	929	419	7,843	3,730
do <i>palustris</i>	Pin oak	0.6938	68.82	1,123	465	7,862	3,040
do <i>prinoides</i>	Yellow chestnut oak	0.8605	86.09	1,125	528	9,204	4,224
do <i>prinus</i>	Chestnut oak	0.7499	74.42	1,255	440	8,615	3,686
do <i>rubra</i>	Red or black oak	0.6540	65.28	1,137	422	8,172	2,825
do <i>tinctoria</i>	Yellow oak	0.7045	70.10	1,034	444	8,012	3,243
<i>Rhus typhina</i>	Sumach	0.4357	.....	.....	.....	.....	.....
<i>Salix flavescens</i>	Black willow	0.4969	53.91	1,262	388	7,484	2,019
do <i>lancifolia</i>	Lance leaved willow	0.4547	45.73	305	200	4,581	1,311
do <i>lasiandra</i>	Willow	0.4756	.....	.....	.....	.....	.....
do <i>nigra</i>	Black willow	0.4456	.....	.....	.....	.....	.....
<i>Sassafras officinale</i>	Sassafras	0.5042	50.38	519	257	6,110	2,144
<i>Taxus brevifolia</i>	Western yew	0.6391	63.78	761	460	7,734	4,223
<i>Thuja excelsa</i>	Yellow cypress	0.4782	47.66	1,029	342	7,281	1,618
do <i>gigantea</i>	Giant cypress or cedar	0.3796	37.90	1,034	319	7,197	1,114
do <i>occidentalis</i>	White cedar or arbor vitae	0.3164	31.53	533	219	4,903	957
<i>Tilia Americana</i>	Basswood	0.4525	45.00	840	252	5,768	1,044
do <i>pubescens</i>	Downy basswood	0.4074	40.47	811	239	6,487	950
<i>Tsuga Canadensis</i>	Hemlock	0.4239	42.20	900	307	6,142	1,314
do <i>Mertensiana</i>	Western hemlock	0.5182	51.61	1,375	388	8,747	1,622
do <i>Pattoniana</i>	Alpine hemlock	0.4454	44.35	775	307	6,074	1,664
<i>Ulmus Americana</i>	White elm	0.6506	64.54	747	364	7,191	2,970
do <i>fulva</i>	Red or slippery elm	0.6956	69.77	953	371	8,628	2,399
do <i>racemosa</i>	Rock elm	0.7263	72.20	1,096	455	9,474	3,281

d. *Prunus mollis* is given by Sargent as a variety of *P. emarginata*, the wood of the latter not having been collected for testing.

e. In Sargent's lists *Thuja excelsa* appears as *Chamaecyparis Nutkaensis*.

Forest wealth of Canada.

It will be seen that there is no tree in Canada of which the wood when dry is heavier than water. In the United States, Mr. Sargent says, the only heavier woods "belong to the semi-tropical region of Florida or to the arid Mexican and interior Pacific regions."

The 24 heaviest woods in Canada are as follows, in order :—

1. <i>Cratægus coccinea</i> .	White thorn.
2. <i>Quercus prinoides</i> .	Yellow chestnut oak.
3. <i>Carya alba</i> .	Shell bark hickory.
4. <i>Pirus rivularis</i> .	Western crab apple.
5. <i>Ostrya Virginica</i> .	Ironwood.
6. <i>Carya tomentosa</i> .	White heart hickory.
7. do <i>porcina</i> .	Pignut hickory.
8. <i>Cornus Florida</i> .	Dogwood.
9. <i>Amelanchier Canadensis</i> .	June berry.
10. <i>Quercus bicolor</i> .	Blue oak.
11. <i>Cratægus tomentosa</i> .	Black thorn.
12. <i>Betula lenta</i> .	Black birch.
13. <i>Carya amara</i> .	Bitter hickory.
14. <i>Quercus prinus</i> .	Chestnut oak.
15. <i>Cornus Nuttallii</i> .	Western dogwood.
16. <i>Quercus alba</i> .	White oak.
17. do <i>Garryana</i> .	Western white oak.
18. do <i>macrocarpa</i> .	Burr oak.
19. do <i>coccinea</i> .	Scarlet oak.
20. <i>Larix occidentalis</i> .	Western larch.
21. <i>Celtis occidentalis</i> .	Sugar berry.
22. <i>Carpinus Caroliniana</i> .	Hornbeam.
23. <i>Ulmus racemosa</i> .	Rock elm.
24. <i>Prunus Americana</i> .	Wild plum.

The 12 lightest woods are as follows, in order of lightness :—

1. <i>Thuja occidentalis</i> .	White cedar.
2. <i>Picea Engelmanni</i> .	Engelmanns' spruce.
3. <i>Abies subalpina</i> .	Mountain balsam.
4. do <i>grandis</i> .	Western white fir.
5. <i>Populus balsamifera</i> .	Balsam poplar.
6. <i>Thuja gigantea</i> .	Giant cedar or cypress.
7. <i>Populus trichocarpa</i> .	Western cottonwood.
8. <i>Abies balsamea</i> .	Balsam fir.
9. <i>Pinus strobus</i> .	White pine.
10. <i>Populus monilifera</i> .	Cottonwood.
11. <i>Pinus monticola</i> .	White mountain pine.
12. <i>Populus angustifolia</i> .	Black cottonwood.

The 24 woods with the greatest transverse strength are as follows :—

1. <i>Betula lutea</i> .	Yellow birch.
2. <i>Quercus prinoides</i> .	do chestnut oak.
3. <i>Larix occidentalis</i> .	Western larch.
4. <i>Betula lenta</i> .	Black birch.
5. <i>Carya alba</i> .	Shell bark hickory.
6. <i>Acer saccharinum</i> .	Sugar maple.
7. <i>Fagus ferruginea</i> .	Beech.
8. <i>Carpinus Caroliniana</i> .	Hornbeam.
9. <i>Ostrya Virginica</i> .	Ironwood.
10. <i>Amelanchier Canadensis</i> .	June berry.
11. <i>Carya tomentosa</i> .	White heart hickory.
12. <i>Carya amara</i> .	Bitter hickory.
13. <i>Carya porcina</i> .	Pignut hickory.
14. <i>Quercus palustris</i> .	Pin oak.
15. <i>Taxus brevifolia</i> .	Western yew.
16. <i>Ulmus racemosa</i> .	Rock elm.
17. <i>Betula papyrifera</i> .	Canoe birch.
18. <i>Quercus coccinea</i> .	Scarlet oak.
19. do <i>tinctoria</i> .	Yellow oak.
20. do <i>prinus</i> .	Chestnut oak.
21. <i>Acer dasycarpum</i> .	Silver maple.
22. <i>Cornus Nuttallii</i> .	Western dogwood.
23. <i>Pinus contorta</i> .	Scrub pine.
24. <i>Quercus rubra</i> .	Red or black oak.

The 24 woods with the greatest elasticity are as follows:—

- | | |
|-------------------------------------|----------------------|
| 1. <i>Larix occidentalis</i> . | Western larch. |
| 2. <i>Betula lutea</i> . | Yellow birch. |
| 3. <i>Pinus contorta</i> . | Scrub pine. |
| 4. <i>Acer saccharinum</i> . | Sugar maple. |
| 5. <i>Betula lenta</i> . | Black birch. |
| 6. <i>Carya alba</i> . | Shell bark hickory. |
| 7. <i>Tsuga Mertensiana</i> . | Western hemlock. |
| 8. <i>Ostrya Virginica</i> . | Ironwood. |
| 9. <i>Betula papyrifera</i> . | Canoe birch. |
| 10. <i>Pseudotsuga Douglasii</i> . | Douglas fir. |
| 11. <i>Salix flavescens</i> . | Black willow. |
| 12. <i>Larix Americana</i> . | Tamarack. |
| 13. <i>Abies amabilis</i> . | White fir. |
| 14. <i>Quercus prinus</i> . | Chestnut oak. |
| 15. <i>Fagus ferruginea</i> . | Beech. |
| 16. <i>Amelanchier Canadensis</i> . | June berry. |
| 17. <i>Carya tomentosa</i> . | White heart hickory. |
| 18. <i>Carpinus Caroliniana</i> . | Hornbeam. |
| 19. <i>Quercus rubra</i> . | Red oak. |
| 20. <i>Pinus resinosa</i> . | Red pine. |
| 21. <i>Quercus prinoides</i> . | Yellow chestnut oak. |
| 22. do <i>palustris</i> . | Pin oak. |
| 23. <i>Populus trichocarpa</i> . | Western cottonwood. |
| 24. <i>Acer dasycarpum</i> . | Silver maple. |

The 24 woods with the greatest resistance to longitudinal crushing are as follows:—

- | | |
|------------------------------------|----------------------|
| 1. <i>Larix occidentalis</i> . | Western larch. |
| 2. <i>Amelanchier Canadensis</i> . | June berry. |
| 3. <i>Carya alba</i> . | Shell bark hickory. |
| 4. <i>Acer saccharinum</i> . | Sugar maple. |
| 5. <i>Betula lenta</i> . | Black birch. |
| 6. do <i>lutea</i> . | Yellow birch. |
| 7. <i>Carya tomentosa</i> . | White heart hickory. |
| 8. <i>Ulmus racemosa</i> . | Rock elm. |
| 9. <i>Prunus Americana</i> . | Wild plum. |
| 10. <i>Carya porcina</i> . | Pignut hickory. |
| 11. <i>Quercus prinoides</i> . | Yellow chestnut oak. |
| 12. <i>Juglans nigra</i> . | Black walnut. |
| 13. <i>Pinus contorta</i> . | Scrub pine. |
| 14. <i>Acer nigrum</i> . | black maple. |
| 15. <i>Larix Americana</i> . | Tamarack. |
| 16. <i>Tsuga Mertensiana</i> . | Western hemlock. |
| 17. <i>Prunus serotina</i> . | Black cherry. |
| 18. <i>Ostrya Virginica</i> . | Ironwood. |
| 19. <i>Ulmus fulva</i> . | Red elm. |
| 20. <i>Quercus prinus</i> . | Chestnut oak. |
| 21. <i>Cornus Florida</i> . | Dogwood. |
| 22. <i>Carya amara</i> . | Bitter hickory. |
| 23. <i>Pseudotsuga Douglasii</i> . | Douglas fir. |
| 24. <i>Quercus alba</i> . | White oak. |

The 24 woods with the greatest resistance to indentation, to the depth of 1.27 millimeters, are as follows:—

- | | |
|------------------------------------|----------------------|
| 1. <i>Cornus Florida</i> . | Dogwood. |
| 2. <i>Carya porcina</i> . | Pignut hickory. |
| 3. <i>Amelanchier Canadensis</i> . | June berry. |
| 4. <i>Carya tomentosa</i> . | White heart hickory. |
| 5. do <i>alba</i> . | Shell bark hickory. |
| 6. <i>Quercus prinoides</i> . | Yellow chestnut oak. |
| 7. <i>Taxus brevifolia</i> . | Western yew. |
| 8. <i>Acer nigrum</i> . | Black maple. |
| 9. do <i>saccharinum</i> . | Sugar maple. |
| 10. <i>Pirus coronaria</i> . | Crab apple. |
| 11. <i>Cornus Nuttallii</i> . | Western dogwood. |
| 12. <i>Carya amara</i> . | Bitter hickory. |
| 13. <i>Quercus Garryana</i> . | Western white oak. |
| 14. <i>Crataegus tomentosa</i> . | Black thorn. |
| 15. <i>Quercus macrocarpa</i> . | Burr oak. |
| 16. <i>Ostrya Virginica</i> . | Ironwood. |
| 17. <i>Quercus prinus</i> . | Chestnut oak. |
| 18. <i>Betula lenta</i> . | Black birch. |

Forest wealth of Canada.

19. *Quercus bicolor*.
20. *Fraxinus viridis*.
21. *Celtis occidentalis*.
22. *Carpinus Caroliniana*.
23. *Prunus Americana*.
24. *Quercus alba*.

- Blue oak.
- Green ash.
- Sugar berry.
- Hornbeam.
- Wild plum.
- White oak.

COMPARISON WITH UNITED STATES WOODS.

In the tables of weight, strength, &c., of woods in the United States census returns of 1880, there are no Canadian specimens among the hardwoods tested, so that no comparisons can be made between the woods in the two countries.

As regards the coniferous trees, in the case of many species and among them the most important, tests of Canadian specimens have been given with those of the United States to make up the averages. In the preceding tables, these combined averages have been given, but in the following table the averages have been calculated separately for the two countries, so as to allow of comparison.

The following table gives the specific gravity of some of the principal coniferous woods of Canada and the United States, the averages for the two countries being given separately :—

AVERAGE SPECIFIC GRAVITY OF WOODS OF CANADA AND UNITED STATES, COMPARED.

Botanical name.	English name.	CANADA.		UNITED STATES.	
		No. of specimens.	Specific gravity.	No. of specimens.	Specific gravity.
<i>Atlantic Coast.</i>					
<i>Larix Americana</i>	Tamarack.....	4	0·5764	4	0·6709
<i>Picea alba</i>	White spruce.....	3	0·4060	2	0·4038
do <i>nigra</i>	Black spruce.....	3	0·4400	3	0·4768
<i>Pinus Banksiana</i>	Banksian pine.....	2	0·4744	1	0·4794
do <i>resinosa</i>	Red pine.....	2	0·4587	6	0·4944
do <i>strobus</i>	White pine.....	4	0·3678	6	0·3972
<i>Thuja occidentalis</i>	do cedar.....	5	0·3160	4	0·3169
<i>Tsuga Canadensis</i>	Hemlock.....	5	0·5527	6	0·40·1
<i>Pacific Coast.</i>					
<i>Picea Sitchensis</i>	Western white spruce....	1	0·3816	4	0·4405
<i>Pinus monticola</i>	White mountain pine....	1	0·4197	1	0·3619
<i>Pseudotsuga Douglasii</i>	Douglas fir.....	4	0·4864	17	0·5226
<i>Thuja excelsa</i>	Yellow cypress.....	1	0·4999	3	0·4710

It appears that on the Atlantic side of the continent the woods of the tamarack, black spruce, banksian pine, red pine, white pine and white cedar were found to be lighter in the Canadian than the United States specimens ; the Canadian white spruce and hemlock were heavier. On the Pacific coast, the Canadian Douglas fir and Western white spruce were lighter, and the Canadian white mountain pine heavier, than the United States woods. In the case of the yellow cypress, all the United States specimens were from Alaska, and they were lighter than the Canadian.

The following table gives the coefficient of elasticity, kilograms on millimeters, of the same woods as above for the two countries :

COEFFICIENT OF ELASTICITY OF WOODS OF CANADA AND UNITED STATES COMPARED.

Botanical Name.	English Name.	CANADA.		UNITED STATES.	
		No of specimens.	Coefficient of elasticity.	No of specimens.	Coefficient of elasticity.
<i>Atlantic Coast.</i>					
<i>Larix Americana</i>	Tamarack.....	8	1,230	4	1,324
<i>Picea alba</i>	White spruce.....	6	1,121	2	729
<i>Picea nigra</i>	Black spruce.....	6	1,032	3	1,207
<i>Pinus Banksiana</i>	Banksian pine.....	4	1,077	2	671
<i>Pinus resinosa</i>	Red pine.....	2	944	6	1,195
<i>Pinus strobus</i>	White pine.....	8	888	5	791
<i>Thuja occidentalis</i>	White cedar.....	8	487	6	596
<i>Tsuga Canadensis</i>	Hemlock.....	10	910	10	890
<i>Pacific Coast.</i>					
<i>Picea Sitchensis</i>	Western white spruce.....	2	1,128	7	957
<i>Pinus monticola</i>	White mountain pine.....	1	1,191	2	830
<i>Pseudotsuga Douglasii</i>	Douglas fir.....	6	1,316	30	1,277
<i>Thuja excelsa</i>	Yellow cypress.....	2	1,206	7	978

On the Atlantic side the white spruce, banksian pine, white pine and hemlock were found to have more elasticity in Canada than in the United States; the tamarack, black spruce, red pine and white cedar less elasticity in Canada. On the Pacific coast all four species tested were found to be more elastic in Canada.

The following table gives the ultimate transverse strength in kilograms of the same woods as before for the two countries:

TRANSVERSE STRENGTH OF WOODS OF CANADA AND UNITED STATES COMPARED.

Botanical Name.	English Name.	CANADA.		UNITED STATES.	
		No of specimens.	Ultimate transverse strength.	No of specimens.	Ultimate transverse strength.
<i>Atlantic Coast.</i>					
<i>Larix Americana</i>	Tamarack.....	8	370	4	412
<i>Picea alba</i>	White spruce.....	6	323	2	307
<i>Picea nigra</i>	Black spruce.....	6	298	3	360
<i>Pinus Banksiana</i>	Banksian pine.....	4	286	2	261
<i>Pinus resinosa</i>	Red pine.....	2	315	6	350
<i>Pinus strobus</i>	White pine.....	8	269	5	263
<i>Thuja occidentalis</i>	White cedar.....	8	202	6	241
<i>Tsuga Canadensis</i>	Hemlock.....	10	329	10	299
<i>Pacific Coast.</i>					
<i>Picea Sitchensis</i>	Western white spruce.....	2	281	7	276
<i>Pinus monticola</i>	White mountain pine.....	1	292	2	244
<i>Pseudotsuga Douglasii</i>	Douglas fir.....	6	352	30	381
<i>Thuja excelsa</i>	Yellow cypress.....	2	416	7	321

It appears that on the Atlantic side the white spruce, banksian pine, white pine and hemlock had greater transverse strength in Canada than in the United States; while tamarack, black spruce, red pine and white cedar had less transverse strength in Canada. On the Pacific coast the Douglas fir showed less transverse strength and the other three species more transverse strength in Canada.

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The following table gives the ultimate resistance to longitudinal crushing in kilograms, of the same woods as before for the two countries :—

RESISTANCE TO LONGITUDINAL CRUSHING OF WOODS OF CANADA AND UNITED STATES COMPARED.

Botanical Name.	English Name.	CANADA.		UNITED STATES.	
		No. of specimens.	Resistance to longitudinal crushing.	No. of specimens.	Resistance to longitudinal crushing.
<i>Atlantic Coast.</i>					
<i>Larix Americana</i>	Tamarack	8	8,531	6	8,653
<i>Picea alba</i>	White spruce.....	6	5,688	4	5,140
<i>Picea nigra</i>	Black spruce.....	6	6,259	3	7,040
<i>Pinus Banksiana</i>	Banksian pine.....	4	6,959	2	5,069
<i>Pinus resinosa</i>	Red pine.....	2	7,666	6	7,143
<i>Pinus strobus</i>	White pine.....	8	5,386	5	5,470
<i>Thuja occidentalis</i>	White cedar.....	10	4,635	6	5,316
<i>Tsuga Canadensis</i>	Hemlock.....	10	5,918	10	6,367
<i>Pacific Coast.</i>					
<i>Picea Sitchensis</i>	Western white spruce....	2	5,647	7	5,655
<i>Pinus monticola</i>	White mountain pine....	1	6,123	2	4,963
<i>Pseudotsuga Douglasii</i>	Douglas fir.....	7	8,136	28	8,703
<i>Thuja excelsa</i>	Yellow cypress.....	2	7,995	6	7,044

On the Atlantic side the white spruce, banksian pine and red pine of Canada, were found to offer more resistance to longitudinal crushing than those of the United States; the tamarack, black spruce, white pine, white cedar and hemlock of Canada offered less resistance. On the Pacific coast the white mountain pine and the yellow cypress offered more resistance, and the western white pine and Douglas fir less resistance in Canada than in the United States.

The following table gives the resistance to indentation to 1.27 millimeters in kilograms of the same woods as before for the two countries :—

RESISTANCE TO INDENTATION OF WOODS OF CANADA AND UNITED STATES COMPARED.

Botanical Name.	English Name.	CANADA.		UNITED STATES.	
		No. of specimens	Resistance to indentation.	No. of specimens	Resistance to indentation.
<i>Atlantic Coast.</i>					
<i>Larix Americana</i>	Tamarack	8	1,467	6	2,215
<i>Picea alba</i>	White spruce.....	6	1,058	4	1,358
<i>Picea nigra</i>	Black spruce.....	6	1,179	3	1,361
<i>Pinus Banksiana</i>	Banksian pine.....	4	1,569	2	1,690
<i>Pinus resinosa</i>	Red pine.....	2	1,592	6	1,273
<i>Pinus strobus</i>	White pine.....	8	1,046	5	1,431
<i>Thuja occidentalis</i>	White cedar.....	10	969	6	936
<i>Tsuga Canadensis</i>	Hemlock.....	10	1,491	10	1,138
<i>Pacific Coast.</i>					
<i>Picea Sitchensis</i>	Western white spruce....	2	1,146	7	1,165
<i>Pinus monticola</i>	White mountain pine....	1	1,139	2	1,037
<i>Pseudotsuga Douglasii</i>	Douglas fir.....	7	1,392	28	1,650
<i>Thuja excelsa</i>	Yellow cypress.....	2	1,674	6	1,600

On the Atlantic side it appears that the red pine and hemlock of Canada offer more resistance to indentation than those of the United States; the tamarack, white spruce, black spruce, banksian pine, white pine and white cedar of Canada offer less resistance. On the Pacific coast the western white spruce, white mountain pine and Douglas fir of Canada offer less resistance to indentation than those of the United States; the yellow cypress of British Columbia offers more resistance to indentation than that of Alaska.

To sum up the results of these tests: The tamarack, black spruce and white cedar of Canada were found to have less weight, less elasticity, less transverse strength, less resistance to longitudinal compression and less resistance to indentation than those of the United States; the white spruce of Canada was found to have more weight, elasticity, transverse strength and resistance to longitudinal compression but less resistance to indentation; the banksian pine more elasticity, transverse strength and resistance to longitudinal compression, but less weight and resistance to indentation; the red pine more resistance to longitudinal compression and to indentation, but less weight, elasticity and transverse strength; the white pine more elasticity and transverse strength, but less weight and resistance to longitudinal compression and to indentation; the hemlock more weight, elasticity, transverse strength and resistance to longitudinal compression, but less resistance to indentation. Of the Pacific coast trees the western white spruce of Canada appeared by the tests to have more elasticity and transverse strength, but less weight and resistance to longitudinal compression and indentation than those of the United States; the white mountain pine more weight, elasticity, transverse strength and resistance to longitudinal compression, but less resistance to indentation; the Douglas fir more elasticity but less weight, transverse strength and resistance to longitudinal compression and indentation. The yellow cypress of British Columbia showed more weight, elasticity, transverse strength and resistance to longitudinal compression and indentation than those of Alaska.

In tabular form the results of these tests were as follow; the plus sign being used where the figure for the Canadian wood is higher, and the minus sign where it is lower than for woods of the same species of trees in the United States:—

WOODS OF CANADA AND UNITED STATES COMPARED.

Botanical Name.	English Name.	Specific gravity.	Elasticity.	Ultimate transverse strength.	Resistance to longitudinal compression.	Resistance to indentation.
<i>Atlantic Coast.</i>						
<i>Larix Americana</i>	Tamarack.....	—	—	—	—	—
<i>Picea alba</i>	White spruce.....	+	+	+	+	—
<i>Picea nigra</i>	Black spruce.....	—	—	—	—	—
<i>Pinus Banksiana</i>	Banksian pine.....	—	+	+	+	—
<i>Pinus resinosa</i>	Red pine.....	—	—	—	+	+
<i>Pinus strobus</i>	White pine.....	—	+	+	—	—
<i>Thuja occidentalis</i>	White cedar.....	—	—	—	—	—
<i>Tsuga Canadensis</i>	Hemlock.....	+	+	+	—	+
<i>Pacific Coast.</i>						
<i>Picea Sitchensis</i>	Western white spruce..	—	+	+	—	—
<i>Pinus monticola</i>	White mountain pine..	+	+	+	+	—
<i>Pseudotsuga Douglasii</i>	Douglas fir.....	—	+	—	—	—
<i>Thuja excelsa</i>	Yellow spruce.....	+	+	+	+	+

Forest wealth of Canada.

TANNING VALUES.

The United States census report for 1880 gives a table showing the amount of tannin contained in the bark of various North American trees, and those among them to be found in Canada are given below.

The report says : "These determinations give the proportion of tannin. They do not indicate the real value of the bark of the species for tanning, which can only be obtained by actual experiments made on a large scale, other properties in the bark, besides the percentage of tannin, affecting the value of the leather prepared with it. These determinations must, therefore, be regarded as approximations, which will serve, in some cases, to indicate species not now in general use for this purpose, which may be looked to as possible sources of tannin supply. The tannin in each case was determined in the rossed bark ; that is, bark deprived of the main part of the outside coating."

PERCENTAGE OF TANNIN IN BARK OF CANADIAN TREES.

Botanical Name.	English Name.	Tannin.
		p. c.
<i>Castanea Americana</i>	Chestnut..	6·25
<i>Picea nigra</i>	Black spruce.....	7·20
<i>Picea Engelmanni</i>	Western white spruce.....	20·56
do	do do	17·01
do	do do	12·60
<i>Pseudotsuga Douglasii</i>	Douglas fir.....	13·79
<i>Quercus alba</i>	White oak.....	5·99
do <i>macrocarpa</i>	Burr oak.....	4·59
do <i>prinus</i>	Chestnut oak	6·25
do <i>prinoides</i> (old tree).....	Yellow chestnut oak.....	4·33
do do (young tree).....	do do	10·33
do <i>rubra</i>	Red or black oak.....	4·56
do <i>tinctoria</i>	Yellow oak.....	5·90
<i>Tsuga Canadensis</i>	Hemlock.....	13·11
do <i>Mertensiana</i>	Western hemlock.....	14·42
do do	do do	15·87
do <i>Pattoniana</i>	Alpine hemlock.....	13·79

It appears from these tests that the western white spruce, the Douglas fir, the western hemlock and the Alpine hemlock, all British Columbian trees, have a greater percentage of tanning in their barks than the common hemlock.

APPENDIX "K."

CANADIAN WOODS AND THEIR ECONOMIC USES.

LECTURE BY THE HON. J. K. WARD, IN THE SOMERVILLE COURSE.

(Montreal Herald, March 22, 1892.)

In acceding to the request to prepare a paper to be read on this occasion on the Forest Trees of Canada, their use and commercial value, I did so on condition that my remarks would be of a practical character rather than theoretical or technical. What I will have to say has been acquired in the rough school of experience and not in academic halls or at the feet of wise men. Having spent more than half a century in the workshop, the forest, on lake and river and in the saw-mill, I am sure you will not think it out of place or presumptuous on my part to try to impart some of the knowledge I may have acquired in the way indicated, though it be ever so little.

The trees indigenous to our country and climate are of two classes, the coniferous or evergreen and deciduous or those that shed their leaves annually.

Of the first-named class is the common cedar, one of the most useful in our woods. It abounds in nearly every part of the wooded country, is largely used for fence rails, pickets, posts, sills for buildings, telegraph posts, railway ties, where the line is straight, it being considered too soft to resist the pressure on curves. It is very light and durable, has a pleasant aroma, said to be a protection against moths when used for drawers or chests. It also furnishes material for roof shingles for home use and exportation, a large quantity of which find their way into the United States from the Eastern Townships.

Not the least important of the evergreens is the hemlock. It exists in great quantities in almost every part of the province, and is usually found mixed with other woods; it is the cheapest class of sawed lumber that we have, is strong and durable when not exposed to the weather, and is used for rough work such as sheathing, roof boards for shingling on, holding nails better than almost any other wood, joists, studding, stable flooring, as it is said to be proof against rats gnawing through it on account of the prickly nature of the wood. But the great value of the tree when it is not too far from navigable water or rail is in its bark, which is almost invaluable for tanning purposes, and realizes from \$4 to \$7 a cord alongside railroad or barge. Trees that are taken for their bark are usually cut down and stripped during the months of June and July, when it peels easily, but it is no pleasant task for those who have to do it, as the plague of black flies and mosquitoes prevailing at that time can only be appreciated by those who have had some experience in the bush at this particular season. The tree, after the bark is taken off, if not too far from river or mill, is made into saw-logs and sold to the lumbermen or taken to the mill and sawed on halves, the millman taking half for his labour, the farmer selling the other portion or hauling it home for his own use. The extract of hemlock is used in medicine for its narcotic properties.

The balsam or sapin of the French, is of little commercial value. When large enough it is made into lumber. It is usually found in poor soil mixed with white spruce. It makes a nice ornamental tree, is graceful in shape, nicely pointed at the top and of a very dark green colour.

Our ordinary white spruce, one of the best known and most useful of the evergreens, is found in great plenty from Nova Scotia to the Ottawa, including the St. Lawrence and their tributaries, but it is not often seen west of the former river till we reach Lake Superior and Northern Manitoba. The wood of this tree is largely used for building purposes, making excellent floors and joisting timber, as well as for doors, sashes, mouldings and inside finishing when white pine is scarce. It also furnishes spars for sailing vessels, such as yards, masts, &c., as it is both light and strong.

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The sea or black spruce of Nova Scotia and New Brunswick is largely used in the frames of ships and when well salted is said to be almost as strong and durable as oak. I have seen a Nova Scotia barque with part of her frame exposed, as sound as the day it was put up, after eight years of service in many climes and storms. The spruce is also the favourite wood of pulpmakers, to be manufactured into paper, though other woods to some extent are used, the young trees being preferred. Vast quantities are cut down to supply the demand which is increasing very rapidly. Much of this material is taken to the United States in its natural state, where it enters free of import duty. Our government, I think unwisely, removed the export duty that existed until a year or two ago, thus hastening the denuding of our forests, and robbing the country of one of its principal sources of wealth.

The next in order of this class is the tamarack or larch, sometimes known as hackmatack. It is deciduous in character, and though it has fallen in value of late years owing to the decline of ship-building in Quebec, yet it is an excellent wood, being little inferior to oak for strength and durability, and much more easily worked. Years ago I have sold it in Quebec for 25 cents a cubic foot, while to-day it is difficult to get for the same average quality 12 to 14 cents, and that for only a limited quantity. None of it is exported. What is made is principally used for sills, under plank sidewalks, and in the construction of a few small vessels and scows that are built for local purposes. The smaller trees are mostly made into railroad ties and cordwood which is considered an excellent steam producing fuel on account of its inflammability. Tamarack knees made out of the root of the tree are valuable to export.

The red or Norway pine, another of the coniferous trees, is often found scattered with white pine, largely on the Ottawa and its tributaries; it has much thicker sap than the other pines; it is a valuable timber, strong and elastic, much used in this country for flooring, and the frames of railroad cars; in England largely for flooring, joists and ship planking.

We now come to what every lumberman considers the king of the forest in grandeur, usefulness or value, the white or cork pine, or *pinus strobus* of the scientists—the tree of all others that serves more purposes than we can enumerate. Among them the tiny match, the mast for the great ship, the frame of the sweet sounding piano, and wherever a soft, easy working wood is wanted either in the arts, the workshop or the factory, there it is to be found. As an article of commerce it far surpasses in value and quantity that of any other wood, if not of all sorts put together. It supplies more freight for vessels coming into the St. Lawrence than any other commodity; it gives more employment to wage-earning men than any industry in our country, except agriculture. It employs more capital in manipulating it, from the time the men leave for the woods in the fall to make, haul and drive the logs and timber to the mills—the building of mills for sawing, the construction of barges and steamboats to convey it to the market, as well as the large amount of freight furnished to railroads, the erection of factories to convert it to the various uses to which it is put. It is safe to say that the value of the output of pine lumber alone, produced in Canada, is at least \$25,000,000, or two and a half times as much as that of any other manufacturing industry, and when we consider that 60 per cent is paid for labour and that nearly all to men representing a large population, you can readily see how important it is, either by legislation or otherwise, to protect and conserve the source of this great factor in our prosperity. How can we extol sufficiently this monarch of the forest that we are so much indebted to? The tree when growing in the open country is of little or no value except as a shade tree, its lateral branches reaching almost to the ground, and it is in the dense forest that we have to look for the great tree of commerce, where nature acts the pruner. There the branches decay and drop off, the trunk shoots upward high above its neighbours seeking that which it was deprived of below, light and air. By this action of nature we get our clear pine, so much prized by mechanics. As the branches drop off the wood grows over them and we get the stately tree carrying its size well up and often attaining 60 or 70 feet to the branches. I once saw a tree that measured 40 inches in diameter, 70 feet from the ground, without a knot or defect visible in this space. Naturally, however, it is very rare to get a log, or the best of timber without finding knots or defects as you get near

the heart, the remains of the dead branches that fell off in the tree's youth. My experience teaches me that white pine is of slow growth. The smallest tree that ought to be taken for saw-logs or timber should be at least fourteen inches at the butt. This would take not less than fifty years to produce, and such a tree as I before described, as much as one hundred and fifty. I have a white pine tree near my house that has not gained more than three inches in twenty years, although it is a good rich soil, perhaps too rich. Large groves of pine are usually found on poor, light soil. I think consequently that the bulk of the pine found under such circumstances, is apt to be punky or defective for the want, so to speak, of nourishment. The best pine is usually found on stronger soil mixed with hardwood. It is unpleasant to contemplate the want of this valuable timber. Once gone it is gone forever, and cannot be reproduced in our or our children's time, as unlike mineral or other products of the soil, the quantity produced from these is only limited by the amount of labour employed in producing them. Perhaps, however, time will find a substitute in some artificial wood, or employ metal to take its place. Hardwoods, to which I will briefly refer presently, that were once almost discarded, except for burning, are coming largely into use in consequence of the improved woodworking machinery, that has been devised of late years, making the work of preparing and completing joiner work much more simple and easy than it was to do the same thing in pine (when I served my time over 50 years ago, and when flooring, mortising, tenoning, striking mouldings out of dry spruce with hard knots was done by hand). The facilities also for reaching hardwoods and getting them to market will help to make up for the loss of this favourite material, which I hope is yet a long way off. I might say before closing this part of my subject that the magnificent cedar of British Columbia will no doubt largely take the place of white pine for joiner work. The Douglas fir will be a valuable substitute for our coarser woods, when they become scarce and high in price, that is if the railroads moderate rates coming east so as to come into competition with each other. It will, however, I am afraid, be some time before either takes place.

The last of the soft wood that I will refer to is the basswood, linden or *bois blanc*. It is usually found mixed with other woods, is a handsome tree growing tall and straight and often found from two to three feet in diameter, and sheds its leaves annually. It produces lumber that is much used by carriage-makers, furniture manufacturers and joiners for panels, &c. This wood, when green, readily absorbs water and if put into the river to drive with other logs, many soon find their way to the bottom and are lost. Those that reach their destination lose much of their value for fine work by reason of water stain, &c. The true way to manufacture basswood is to draw it direct from the stump to the saw-mill when possible. The white wood produced under such circumstances is capable of a fine finish and when work is properly done, shell-lacked and oiled, is almost in appearance equal to satinwood. The common or red portion of the log is mostly used for packing cases. I am not aware of any quantity of it being exported, most of it being produced in small mills for home use.

Of the deciduous or leaf-shedding trees, the first I will refer to is the beech, a handsome shade tree with smooth bark and bearing a small triangular nut, not of an unpleasant taste. The wood is used for various purposes, such as carpenters' planes, shoemakers' lasts, bobbins and shuttles for cotton and woollen factories, and largely for firewood, as it makes excellent fuel.

Birch, of which there are several species, principal among them being the large or yellow birch, is much used for furniture, by wheelwrights, for stair building, for hand-rails and balusters, and in ship building, forming a portion of the frame, flooring and keelson, being durable when kept wet. It is also largely exported to Europe as square timber. It is a tree of considerable size, often reaching 20 to 30 inches in diameter. It is also a favourite firewood.

The white birch or *bouleau*, has within a few years become of some value when found within easy reach, having been turned to account for the manufacture of spools and spool wood for thread-makers, the white part of the wood only being used. It is made into squares varying from one inch, in eighths, to say two inches, and three or four feet long. Many ship loads have been shipped to England and Scotland the past few years, principally from the lower St. Lawrence. The red or heart being useless to the

Forest wealth of Canada.

spool-makers is either used as firewood or left to rot. There are vast quantities of this wood in the interior, too far from navigation or rail to be of any value. It is mostly found on poor soil, mixed with balsam, small spruce and cedar. It makes good firewood when dry. The bark is useful to the Indian for the making of his canoe; the vessel for retaining the sap of the maple; his drinking cup and the cover of his wigwam. The yellow birch also provides him a cough remedy by boiling the sap down to a syrup and lastly, though not least, it furnishes the proverbial birch rod, which though almost obsolete, sometimes does good service, even in these days of advanced ideas. Vast quantities of the dwarf or black birch have been used as withes in rafting logs, some concerns using as many as thirty or forty thousand in a season, each of them representing a young tree, but little of this is done at present.

The elm is much admired as a shade tree and is of considerable importance. The rock elm found in Ontario, being tough and durable, is much valued for planking the bottoms and bilges of vessels, and where there is chafing on the guards. Common elm is used for barrel staves; it is not thought much of as fuel.

Oak is one of the most valuable woods of commerce. The white and blue oaks of Ontario were famous for their great size and length, as well as strength and durability. In ship building it has no rival, except it be the live oak of Florida. For wagon-making and articles requiring strength, it is invaluable, and is much used in the better class of furniture. The white oak found in Quebec is small and of little value; the red oak, however, is of good size, it makes excellent inside floors, and is much admired for household furniture. It is also valuable for hoghead staves; it makes, when dry, a hot fire, and is said to be good for burning out stoves.

Black walnut is almost a thing of the past, although forty or fifty years ago in the country between Guelph, the St. Clair River and Lake Erie it was cut down, burnt or put to the commonest uses, such as fence-posts, rails, hog-pens, &c. The value of this wood has changed so much since that time that I once saw a log which cost three hundred dollars delivered in Troy, N. Y.

Of the maples there are many varieties, two only which we will refer to, what are commonly known as the soft and hard species. The former is a rapid growing tree, found in low lands as well as on the hill-side, makes, when dry, a good firewood; when sawed into lumber is used for floors, furniture, gunstocks, and lasts. It is comparatively soft and easy to work. The hard, or commonly known as the sugar or rock maple, is one of the handsomest and most useful of our forest trees. It is emblematical of our nationality, is found in almost every part of the country either as shade or ornamental, or as a wood of commerce. As a shade tree it is hardly excelled by any other for the beauty of its foliage or the symmetry of its proportions. Who is it that has not admired the elegance and richness of the curly and birdseye maple, when worked into bedroom sets of furniture, and then the many uses it is put to, where strength and durability are required. By the millwright it is preferred to any other of our woods for boxes and bearings, for shafting when running in water, as well as cogs or teeth for gearing wheels. It is also a favourite wood with the lumberman, as it supplies him with one of the best materials for axe-handles, handspikes and cant-hooks for river driving, &c. As a sugar producing tree it is of great importance, saving a good deal of money to the farmer, as well as employment at a season when there is little else to do, and affording amusement to the young in having a sugar bee and a good time generally. Though a slow grower it will always remain a favourite.

The hickory, a tree of many species, is highly esteemed as being perhaps the best heat producing wood in our country, being considered better for this purpose than even the rock maple. It is much more plentiful in Ontario than Quebec. For toughness and strength it is not excelled by any of our forest trees, and consequently is largely used for axe-handles, and agricultural implement makers use it where strength and lightness are required.

Before closing I wish to call your attention to the desirability of doing what we can towards conserving our forest wealth. I think I am safe in saying that the yearly value of forest products in Canada is not less than \$40,000,000. Forests are also the regulators of the flow of water, holding it back in the glades and swamps, and thus preventing often times what might otherwise be disastrous floods.

APPENDIX "L."

"THE BATTLE OF THE FORESTS."

(By Prof. B. E. Fernow.)

In an article in the *New Science Review*, October, 1894, Mr. Charles Barnard gives an account of papers read before the August meeting of the American Association for the Advancement of Science, one of them being as follows:—

The paper read at one of the evening sessions by Prof. B. E. Fernow, Chief of the Forestry Department at Washington, was profusely illustrated, and, while technical in its character, treated of subjects that are of vital importance to all the people. After an instructive and exhaustive history of the rise and progress of the vast forests that once covered the larger part of this country, and after showing the once enormous extent of our forest wealth, Professor Fernow took up the subject of man's interference in the great century-long battle that always goes on in all wooded lands between the weak and the vigorous trees, each striving for a foothold in the soil and a chance to enjoy sun and air.

Forest growth begins on barren sands or bare rocks, by the starting of shrubs and small plants, that, dying, leave their remains to form a humus or soil in which better and larger plants may grow. Trees create soil through their own decay and death, and by catching and holding water and drifting material of all kinds. A forest in active operation creates its own soil at the rate of one foot in five hundred years. The lumberman can strip an acre of forest of its trees in a few days, and leave the soil that it cost two thousand years to lay down, to be totally ruined and destroyed in a few months. The natural processes that instantly follow the cutting off or burning of a forest area, and the correct methods of controlling them and the proper means to be used in saving our forest wealth, form the science of forestry. A rapid and graphic study of this science made the most interesting and valuable part of Professor Fernow's paper.

Rain falling on forest-covered land meets with an elastic surface. The leaves break up its down-pour, and the trees and the vegetable growth under them act precisely as a sponge, checking the on-rush of the water, holding it back, and allowing it to seep slowly away, without injury to the soil. Forests act as moisture holders, and keep the air damp by checking too rapid evaporation. Drying winds and the direct sunlight act more slowly in woods than on bare hillsides. Strip the land of its trees by axe or fire, and the rain strikes the soil with full force, accumulates in swift rivulets, plows up the soil, and sweeps it away to lower levels. The process is simple; the results are enormously destructive. Streams that in forests ran evenly throughout the greater part of the year, become capricious and uncertain, now raging in destructive floods and torrents now dwindling to mere rivulets, of no value to the miller or boatman. With incredible rapidity the costly soil of mountain slopes is swept away and lost, after the forests disappear. The soil gone, the rains sweep down loose rock and cover the once fertile valleys with wastes of sand and gravel. The process begins everywhere the moment the trees are gone, and increases in destructiveness from year to year, leaving stony wastes on the mountains and a wilderness in the valleys. That we do not see more miles of ruined land and sterile mountain side; that our country is not as much impoverished and desolate as Spain and parts of France, is simply because we have not gone far enough. The process has begun already, on a gigantic scale, in several of our states, and it is only a question of time when the states, combined or singly, must interfere and control the farmer, the miner, and lumberman, who are now so barbarously destroying the present and potential wealth of the country. Well may foreign writers, seeing our wasteful methods of tree cutting, and viewing our inexcusable forest fires, say that we are "a barbarous and uncivilized people."

Forest wealth of Canada.

The science of forestry offers both prevention and cure in forest control and reforestation. Reforestation, or restoring land to a tree-growing condition, is expensive and comparatively slow, so that its general adoption upon a large scale in this country is perhaps doubtful. Forest control we can and must institute at once.

The replanting of forests as practised on the barren and valueless mountains of France was fully described in Professor Fernow's paper, and is interesting, as it is quite possible that some modifications of it may yet prove profitable wherever the price of land will warrant tree culture. These mountains being absolutely denuded of all soil, are washed by every rain, the debris covering the farm lands below. The first step is to check the too rapid flow of storm water, by building little dams of wickerwork on the slopes to catch the water, and compel it to flow slowly in a series of pools and tiny waterfalls. In these slack waters, or catch basins, the drift sand gather and forms little plateaus of soil that in a very short time will sustain a growth of small hardy trees. The roots bind and hold the new soil, and in a comparatively short time the barren hillsides are green with infant forests. Where the slopes are steep, and the damage has been great, masonry dams are used, and soil is carried up and put behind the dams to give a foothold to the young trees. Such prepared hillsides at once begin to act as water-holders, restraining floods, and preventing droughts; in fact, restoring forest conditions. Whether this work will pay here is simply a question of the cost of labour, and the value of the land, the water and the lumber crop. It pays some return at once, by preventing further destruction of good land, and by saving the water and controlling the streams. In New Jersey, where water is money, it would undoubtedly be profitable to reforest many square miles of now valueless mountain sides. There can be no question that in time it will repay to reforest barren mountain sides that are in reasonable reach of large cities, because of the value of the water restrained and restored by forest growth. Ultimately, the lumber crop would be added to the water crop.

Concerning the control of forest lands, Professor Fernow's paper was most impressive. We must do it, or some day meet a lumber and water famine, and see our valley farm lands ruined, and our rivers obstructed, and our cities water-starved. Forest control means simply intelligent supervision over the cutting of trees. The farmer and forest land owner claims he has a right to do as he pleases with his own. Such right implies no injury to others. In the case of forest lands, the right to cut down the trees conflicts with the rights of the entire community, and the rights of posterity—and posterity has moral rights, if not legal rights. Fortunately, forest control is not the mere suggestion of science. Forest control is a science itself. Just as in France the science of reforestation is carried on as a function of government, so in Germany forest control is a proper and profitable branch of the general government. Trained foresters, the police of the woods, patrol all forest lands, protect the trees from fire, decide what trees shall be cut each year, and how and when every single tree shall be felled. Poor and undesirable species are culled out, and valuable commercial varieties saved and protected till of merchantable size. Bare hillsides and all cheap or comparatively valueless agricultural lands, are replanted and made to yield a timber crop where no other crop will grow. In this country, State control of forests must come, and come soon; and the public forester must soon stay the hand of the farmer and lumberman. The question is one of vital importance, involving many diverging and apparently conflicting interests. The highest skill and the widest knowledge must be brought by our State legislators to bear on this question of our forests. Forest preservation does not mean shutting up the woods to useless decay and overgrowth. Intelligent forestry means simply control; preservation and protection first, and then the proper and business-like cutting of this, the greatest crop that the soil has ever yielded. As we now stand idle, while the forest fires bring on us a loss of millions every year, and while the unintelligent wood-chopper is permitted to do as he will with what is not truly his own, we are justly charged with being "a barbarous people." "Woodman, spare that tree," was once a sentiment. It is now a command of scientific duty.

Closely allied to the paper by Professor Fernow, were a number of short papers read before the American Forestry Association, that held its sessions during the week of the American Association meetings. The eighteen papers submitted had all, with

one exception, immediate connection with the science of forestry. The one exception was a descriptive illustrated paper by Horace C. Hovey of Newburyport, Mass., upon the petrified forests of Arizona. This paper while entertaining, as an account of a visit to these curious geologic remains, had no direct bearing on forestry as a science. Its most valuable point in the interest of geology was the wanton destruction of these curious and beautiful relics of ancient forest life by persons who only see in them so much money to be won from their ruin and extinction, and the suggestion that the law should be invoked to protect this remarkable deposit before it be too late.

The remaining papers were all written by experts in the science of forestry, and were valuable as showing the present position of the science in this country as far as it relates to the actual control of our woodland wealth. The forests in all our states are now being made the subject of careful study, both by individuals, scientists and Forestry Commissions under State and Federal control. In some instances the matter is under the care of state geologists and state experiment stations. The study of forest fires and their prevention is also the subject of earnest study in several states, notably in New Jersey, where a complete system of fire protection is under consideration. The consensus of opinion at the meetings seemed to be that we must copy the forestry laws of Germany, and establish regular paid forest fire departments and patrol. All the papers of this association, while almost wholly technical, seemed to be worthy of the most earnest public attention, because it was evident from the tone of the discussions of the association that the great need to-day in this country is forest education. It is not that the great mass of the people are indifferent or careless; it is not that they are willingly allowing the lumberman and farmer to ruin the public wealth invested in trees, but that the people do not realize how serious the matter is, how gigantic is the annual commercial loss occasioned by forest fires and how ill directed our forest depletion. The country seems well wooded to the uninstructed eye. The desolated hill country, bereft of its trees, is seldom seen, and the demand for wood is enormous. These things have led to a certain public indifference that is plainly reflected in all our legislatures, and it was clearly the desire of the Forestry Association that educators throughout the country should bring the public to a realizing sense of the value of forestry science in saving our woodland wealth before it is completely lost.

APPENDIX "M."

PULPWOOD AND WOOD PULP.

THE PRODUCTION OF WOOD PULP.

(From Report of Commission on Forest Reservation.)

The wood pulp industry may be said to have commenced in the year 1846. But its development during the first thirty years was decidedly slow. Since 1876, however, the production of this material has increased rapidly. Its preindustrial period was known only to the chemist. Cellulose was made in the laboratory in 1840, but it was not manufactured, commercially, till 1852. Ground wood was first used for paper-making about the year 1846, when it was manufactured by Keller, under a patent taken out in Saxony in the previous year. Since that date, many improvements have been made in the machinery and methods used in grinding, the main object being to produce a longer and finer fibre. The fibres of the wood are torn away by mechanical pressure against a revolving grindstone, in contact with water. No chemical treatment of the wood is necessary, the only requirements of this industry being cheap wood, abundant water power and suitable machinery.

Forest wealth of Canada.

Processes, such as Sinclair's, have long been in use for pulping very finely cut coniferous wood, and in the Paris exhibition of 1880, one of the most prominent objects exhibited in the Norwegian section, was a *pâte de bois* or *papier maché*, made in this way from pine wood, and worked into cardboard and various moulded panellings, &c. It has been found, moreover, that in this way the whole of a pine tree trunk—branches, needles, and all—can be converted into paper without waste. Saplings, which it would not pay to cut for firewood, are now profitably worked up in this way into pasteboard.

By the chemical processes for manufacturing wood pulp, a good class of pulp is made from the quick-growing poplar and from spruce. The wood of the slower growing linden or basswood, makes an equally valuable white paper pulp.

Oak can also be used, though yielding an inferior product that requires bleaching. One great advantage in the method is that the tannin in the oak is obtained as a by-product, and the chemicals with it in the lye being rather an aid than a hindrance to the tanning process, it is found that hides can be perfectly tanned in it in ten days. This seems to offer to the cultivator of oak coppice, or the enterprising planter of poplars, a most important source of income, whilst in coniferous plantations, there need be absolutely no waste.

The chemical preparation of fibre has given rise to two distinct processes—the soda process and the acid process.

Chemical pulp (cellulose) is used as an adjunct with esparto rags or mechanical pulp, in the manufacture of news, printing, colours, and some kinds of wrapping paper. It forms (according to Mr. Routledge) an excellent succedane, or filler up, and bleaches to a high colour. Fine prints are also manufactured exclusively from acid pulp.

Mechanical pulp is chiefly used as an adjunct in the manufacture of news, cheap printings, and wall-papers, but there are several distinct classes of paper made from it, without any other ingredient, viz., wood-pulp middles from white pine pulp, and various self-coloured wrappings, and tinted wall-papers from brown, sometimes styled patent, pulp.

Another important use is for wood pulp boards and so-called "patent" or brown boards, the latter being produced from brown pine pulp, and the former from white pine pulp.

The consumption of wood pulp boards is increasing rapidly, chiefly for making paper boxes, for which they possess certain advantages over straw boards.

Although almost any wood can be converted into pulp, experience has hitherto decided in favour of conifers of a certain age.

For chemical pulp, trees on an average of twenty years' growth, and a thickness of six to eight inches at the base of the stem, are said to be the best. Younger wood is more tractable by chemical means, but produces a fibre of inferior quality. Older wood requires stronger chemicals to remove the encrusting matter, and possesses no compensating advantages.

In Canada, many species of wood have been utilized, amongst which may be mentioned pine, poplar, spruce, willow, basswood, cedar, hemlock, maple and birch.

Poplar pulp remains white, birch becomes pink, maple turns of a purple tint, and basswood, reddish after grinding.

The practical operations concerned in the manufacture of pulp from wood, by the caustic soda process, may be divided into the following: Barking, sawing, chopping, crushing, boiling or digesting, washing and bleaching, treatment for sale as half-stuff, and soda recovery.

THE WOOD PULP INDUSTRY.

(From the "Canadian Trade Review," 24th November, 1893.)

Of all our industries the public at large know less of that of converting wood into paper than perhaps any other. The raw material and the finished product seem so contrary in nature that few outside the trade have any conception of the processes by which wood is converted into paper, nor of the extent or the possibilities of this singular and interesting triumph of scientific skill. Paper to be made from rags presents no

difficulty to the imagination as their affinity is a natural one, but to look at a spruce tree to-day growing in a forest and to think that in a few days it will come to us as the wrapping of a parcel or as a newspaper, it is indeed hard to realize.

There are two kinds of wood pulp, one called mechanical which is produced by grinding the wood between stones, the other is called chemical which is produced by cooking in large boilers under heavy steam pressure. There are two ways of producing, one called the soda, and the other the acid process, the wood fibre being cut into chips is cooked in liquor of either alkali or sulphate of lime.

The market value of mechanical is \$20 per ton, and chemical $2\frac{3}{4}$ to 5 cents per pound according to quality of fibre. Mechanical pulp is used generally wherever a very cheap paper is required, and is used to the extent of 80* to 90 per cent of the ordinary daily papers, whereas the chemical having strong fibre is used for the better grades of paper, calling for strength and cleanliness, such as book and writing. By the use of the two articles the price of paper is greatly reduced, as they have brought down the price of rags to one-third of their former value before these substitutes were introduced. From the nature of the ground wood, exposure to the sun, indeed to the atmosphere of a room, changes its colour to a dirty yellow, and this to a limited extent also applies to the acid chemical pulp. So that in cases where a paper is wanted to keep its colour no acid pulp is used on account of the extreme difficulty of eliminating traces of sulphur from the paper. Soda chemical fibre pulp on the other hand being naturally free from the encrusting material, contains nothing but pure fibre, and consequently is available for the manufacture of any papers of a better quality. There was at first great difficulty in introducing these pulps to paper-makers, and to get paper buyers to take paper containing any portion of them. But the trade has so far changed that realizing the public appreciated cheap and good paper, which can be made from wood pulp, they have brought it largely into use. The manufacture is pursued at East Angus and other places in Canada. The firm who introduced the process—Messrs. Angus and Logan—continued this manufacture alone for 10 years, and during that time they converted all the pulp they made into paper at their mills. A number of paper mills in Canada make their own wood pulp. Other mills make both chemical and mechanical ground wood pulp for sale to paper mills in Canada, and for export to the United States and Great Britain. The duty on this article in the States is, as we said last week, almost prohibitive—10 per cent on mechanical and \$6 to \$8 per ton on chemical. A cord of wood produces about 900 lbs. of chemical and about 1,400 lbs. ground wood or mechanical. In the Dominion there is now made about 50 tons of sulphite or acid pulp, 50 tons of soda pulp and 100 tons ground wood pulp per day. In order to produce this quantity of sulphite and soda pulp about 225 cords of wood are required daily or 70,000 cords per year, and to produce ground wood manufactured about 160 cords daily or 32,000 cords a year.

It depends on the quality and weight of paper required to determine how much pulp is required per ton. The making and use of chemical and mechanical fibre in the United States is enormous as compared to Canadian production, and our neighbours across the line are finding themselves very short of spruce wood to make pulp. In consequence the large United States mill-owners and capitalists have been buying up large tracts of woodland in Canada to get the control of growing wood thereon, as well as buying all the cut wood they can lay their hands on. As the matter now stands the United States come into Canada and take out our logs free of export duty in large quantities. All that short-sighted improvident Canada gets in the transaction is the cost of the stumpage. If Canadians want to send a ton of pulp into the United States they are charged duty, or if Canadians want to send in sawn spruce lumber \$2 per 1,000 feet is exacted. The net result is that the Government of Canada offer a premium to the United States manufacturer of wood pulp or sawn lumber, as the case may be, and in proportion handicaps the native industry. The saw-mill owners and the pulp makers have interviewed the government repeatedly and have pointed out the injustice of the position. The position can be stated in a few words. Canada owns raw material required for a large manufacturing industry. She has the men, the skill, the capital, needed for converting that raw material into one of great value. The United

*This percentage 80, of mechanical pulp is stated too high.

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States needs that raw material, but will not allow its manufactured product to enter the States except by paying exorbitant duties. For every dollar Canada gets by exporting this article she would get a hundred or a thousand if she used it at home, in supporting Canadian labour and capital. Are we then so reckless of our resources, so dull, so slow, so careless of national interests as to allow a rival nation to clear out our raw materials for the price of an old song, to take away our labour for our mills, and deprive our skill and capital of profitable employment, to make our people literally mere "hewers of wood" for a more enterprising neighbour? Unless we are content to rest under such disgrace, we shall put an export duty on spruce and on pine saw-logs, at least equivalent to the duty the States impose on sawn lumber and pulp, say \$4 per cord on pulp-wood.

CANADA'S TIMBER AND PULP.

(New York Journal of Commerce, 1893.)

The Ways and Means Committee has done well in putting timber on the free list, but it was hoped that it would put all lumber and wood pulp on the free list. We are brought to a consideration of this subject from the remarks made by the Hon. Mr. Foster, Finance Minister of the Canadian Government, in which he intimates that the existing conditions of the interchange of forest products between this country and Canada cannot any longer be permitted to remain in their present unsatisfactory state. The threat made by our western lumbermen that they will make the waters of the lake smooth towing over Canadian logs to start their mills in Michigan now that they have used up their own timber, has forced the Canadian Government to inquire into the conditions; and although Mr. Foster does not appear to distinctly state that it is the intention of his government to reimpose the export duties, he leaves no question that this must be the outcome in case we still persist in exacting heavy duties on Canadian lumber and pulp.

His remarks are sufficiently clear on this point to leave little doubt of the result. When he says: "If conditions remain as they are, when Parliament meets it will become a subject for very grave consideration whether the interests of Canada and her lumber and pulp productions generally, both present and prospective, will not require a strong remedy," and intimates that remedy to be "the imposition of an equivalent export duty on logs exported to any country which imposes heavy duties on Canadian lumber and pulp."

It is well known that there is in Canada a very strong feeling, among those at least whose mills have been forced to close down, from what they claim to be an unfair discrimination in favour of the manufactures of this country by the Canadian Government; and some go so far as to ask for an export duty higher than the United States import duties on Canadian lumber and pulp, as our lumbermen have always insisted that \$2 a thousand feet was only a fair rate of duty to protect the saw-milling industry of the United States, so long as they had timber, and the Canadians think, now that the Michigan millmen must depend on Canadian timber for the future, that it is but just their own agreement should apply to protect the Canadian milling industry, but this idea Mr. Foster does not appear to entertain, for he speaks only of "an equivalent rate of export duty," and leaves it optional with us to have free logs and pulpwood in exchange for free lumber and pulp.

Many of our best informed people believe, irrespective of protective or free trade principles, that the time has arrived when the conditions of our forests, especially those containing white pine and spruce, require most careful consideration to try to extend their usefulness as long as possible, so as not to leave us in a position of having to depend on the generosity of others for our own requirements of such indispensable material as white pine and spruce lumber and pulp. Even now the aspect is by no means reassuring, for we get from the extra census bulletin of 1890, relating to the saw-milling industry of our great white pine producing states—Michigan, Wisconsin and Minnesota—an insight into their condition at that time, when it would appear that outside of that

owned by the Federal and State governments, the quantity of white pine barely reached 50,000,000,000 feet, while the amount cut during the census year reached the enormous total of 10,670,000,000 feet, or over one-fifth as much, the remarks made on this point being: "The manufacturers' holdings of such timber are only sufficient to supply them for about five years at the present rate of cutting. The quantity in reserve is believed to be principally that standing on lands owned by the Federal and State governments."

Since then, the three years' cutting of pine in Michigan has about gleaned the lower peninsula of this timber held by the millmen. The largest amount now held by any one party is that of Mr. David Ward, of Detroit, which he is withholding from the market at present. And, while the Saginaw River is largely dependent on Canadian logs to stock its mills, the Muskegon, the next largest producing river, is styled in a recent issue of the *Chicago Timberman* "A Worn-out Stream"—a sad picture to those who remember what the Muskegon River was in its earlier days; and Muskegon itself has dropped from one of the greatest lumber producing centres of the world to a position of unimportance. From over 750,000,000 feet of annual production only a few years ago, it has fallen to about 100,000,000 feet at the present time, of poor average quality—the mere clearings up of the great hauling operations of the past.

And the same may be said of the great tributary of the Saginaw, the Tittabawassee, which, in 1882, turned out over 600,000,000 feet of logs. In fact, the lower peninsula of Michigan, which up to last year gave the largest production of sawn pine lumber of any State of the Union, may be said to be now out of the field for the future as a pine lumber producer. There then remains, outside of Wisconsin and Minnesota, but the limited tracts of white pine still uncut in the Alleghany mountains south of Pennsylvania, which, like her sister states of New York and the New England States, has now parted with the white pine of commercial importance, while Wisconsin and Minnesota are fast using up the limited quantity left here. So that, in so far as regards white pine, it would appear that the case is even now past repair.

And whatever may be said about the white pine will apply with fully as great force to spruce, for this being a peculiarly northern wood, we must, whether we like it or not, depend on Canada for supplies of this timber, both for lumber and pulp. An examination of the reports of Professor Sargent, respecting the amount of spruce remaining uncut in 1880, showing at that time barely a supply for ten years in the New England States, which would have been pretty well harvested by this time if the same quality and amount had been cut continuously since his report was made, and the almost mathematical accuracy of his estimate of the white pine of Michigan, when carefully considered, should cause us to regard his other estimates with confidence. His estimates of the white pine of Michigan were to include only trees of twelve inches in diameter, twenty feet from the ground, whereas, most of the timber cut for the past half dozen years has been from trees that were not to be taken into consideration, and which should have been allowed to grow to supply timber for the future, and not leave the state, as now, wholly gleaned of pine timber. Pine and spruce lumber and pulp should be admitted free.

THE CUTTING OF TIMBER FOR PULPWOOD.

(*Report of Commission on Forest Reservation.*)

The conditions which obtain in the area covered by the Adirondack Park of the state of New York, in so far as the forest itself is concerned, are analogous to those in the wooded parts of Ontario, and the following extracts from the report of the New York Forest Commission for 1891, relating to the wood pulp industry, the tendency to a natural regeneration of the forest under favourable circumstances, &c., are interesting in view of what is going on in our own province:—

"The manufacture of paper from wood is a comparatively new industry in this country. Its rapid development and the consequent increase in the consumption of valuable forest products demands the attention of everyone interested in American

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forestry. The introduction of wood pulp was regarded with satisfaction by students of the forestry question, because they saw in its use a market for certain small-sized timber, the sale of which is necessary to an economic forestry management. The successful pecuniary results obtained in the management of European forests are due, largely, to the fact that there is a market for everything that is left after cutting the large-sized timber; and so the advent of the wood pulp industry encouraged our forestry people to believe that operations in interlucation could now be carried on as the sale of the thinnings would cover the expense.

"But the consumption of timber by the pulp mills has increased so rapidly as to endanger, instead of promote, the welfare of our forests. In the last eight years, the amount of timber used for this purpose has increased 500 per cent. In the year just passed, 1891, the timber cut for wood pulp in the great forest of Northern New York, was equal to one-third the amount cut by the lumbermen.

"It is not the increased consumption of this forest product that is so noticeable, but the fact that the entire amount consumed is taken from young trees. Only a small amount of pulp timber can be gathered from the limbs and tops left by lumbering operations. Spruce and balsam furnish the main supply, and owing to their excurrent growth, only the tree trunks of these varieties are available.

"The pulp mills on the eastern side of the great forest use timber whose diameter runs from fourteen down to six inches. On the west side, the mills on the Black River use wood with a diameter as low as three inches. It will thus be seen that the introduction of wood pulp, while it might be a valuable factor in economic forestry under proper management and restrictions, now indicates a speedy extinction of the conifers.

"The mills on the Upper Hudson use poplar to an extent of twenty-five per cent, and spruce for the balance; but the proportion of poplar used is growing less each year. The mills on the Black River use spruce, balsam, poplar, and some small second growth pine. Hemlock is used to some extent, when mixed with other kinds of wood. In making chemical fibre, however, the sulphite mills can use one-third hemlock. Tamarack is also used in small quantities, but it is a dark-coloured wood, and makes a dark, although strong paper. No cedar is used, nor any hardwood. On the Hudson, the pulp timber is cut in the same length as logs, and is floated down the streams with the log drives. It is cut thirteen feet long, and is sent to the mill with the bark on. The most of the pulp timber for the Black River mills comes from St. Lawrence and Lewis counties, where it is cut into four foot lengths, measured, and sold by the cord, and shipped then over the Carthage and Adirondack Railroad. A large proportion of the pulp timber cut in Lewis and St. Lawrence counties is peeled before it is taken from the forest, thereby obviating the use of barking machines at the mills. This supply of peeled timber is cut during the bark season, which lasts from 20th May to 15th August, before or after which time the bark will not peel.

"In estimates of a general character, one cord of timber is said to make one ton of brown pulp, dry weight; but the actual results indicate that a cord of wood will produce only 1,800 pounds. In the chemical process, two cords of wood are consumed making a ton of dry pulp, or chemical fibre, as it is called.

"Wood pulp, or cellulose, when first manufactured in this country, was used for paper only, and to a comparatively small extent. But the industry has developed with surprising rapidity, and now almost the entire bulk of newspaper stock is made from wood. Other uses for it have been discovered, and these new adaptations are multiplying each year. Under the name of indurated fibre, it is used to a large extent in making tubs, pails, barrels, kitchen ware, coffins, carriage bodies, furniture and building material. In this state there are pulp mills at Oswego and Lockport which manufacture various wares of indurated fibre, but these mills do not obtain their timber supply from the Adirondack forest. Wood pulp is also used to some extent in the manufacture of gunpowder.

"Prof. B. E. Fernow, of the Forestry Bureau, at Washington, says in his last annual report:—'While the use of timber has been superseded in ship building, the latest torpedo ram of the Austrian navy received a protective armour of cellulose, and our own new vessels are to be similarly provided. While this armour is to render the effect

of shots less disastrous by stopping up leaks, on the other hand, bullets for rifle use are made from paper pulp. Of food products, sugar (glucose) and alcohol can be derived from it, and materials resembling leather, cloth, and silk have been successfully manufactured from it. An entire hotel has been lately built in Hamburg, Germany, of material of which pulp forms the basis, and it also forms the basis of a superior lime mortar, fire and water proof for covering and finishing walls.

"The state of New York leads all other states in the manufacture of wood pulp, having seventy-five mills engaged in the industry, out of the 237 mills in the United States. Wisconsin comes next, with twenty-six mills; then comes Maine, with twenty-four; and then New Hampshire and Vermont with eighteen each. Canada has also a very large production of wood pulp from its thirty-three mills, besides supplying large quantities of timber to mills situated in the United States.

"Of the seventy-five mills in the state of New York, sixty-four mills draw their entire supply from the great forest of Northern New York, or what is known as the Adirondack woods."

THE FINANCE MINISTER ON SAW-LOGS AND PULPWOOD.

From "The Canadian Trade Review."

Since our last week's article on wood pulp, in which we made a strong protest against sending our raw materials to the States, the Finance Minister has declared that the question will require the gravest consideration of Parliament next session. The duty of Canada is to make hay while the sun shines. The Americans must have our logs or close their mills, or buy our manufactured lumber and our pulpwood or close their paper mills in New York and New England. If we put an export duty on them they will still largely go to the States, but we shall have a revenue out of them. The true, sensible course is to keep the logs at home, and let Americans buy the manufactured article, which they would be compelled to do, as their native supplies are fast disappearing.

SIR CHAS. TUPPER, BART., ON WOOD PULP IN UNITED KINGDOM.

(Circular, Department of Trade and Commerce, July 6th, 1893.)

DEPARTMENT OF TRADE AND COMMERCE, OTTAWA, July 6th, 1893.

I am directed by the Honourable the Minister of Trade and Commerce to call your attention to information that has reached this department through the High Commissioner in London, having reference to the demand for, and importation of wood pulp into Great Britain, which would seem to indicate that with the resources at the command of Canadian manufacturers of the article an extensive trade could be worked up with the consumers in that country.

The information may be summarized as follows:—

Most of the pulp imported into Great Britain is from Germany and Scandinavia.

The best sulphite pulps are made in Germany, though large quantities are also made in Scandinavia and Austria, those from the latter country being very good.

The products of the best known works in Germany bring high prices, samples from some of them are marked as being worth in Liverpool £11 5s., £12 5s., £12 10s., £12 15s., £13 5s., £13 10s., and £16, less 2½ per cent per ton.

Samples of sulphite pulp from Norway are marked £12, £12 5s., £12 10s., and £13 5s.; of Scandinavian pulp, £12 5s., £12 10s., £13 5s.; of Austrian, £12 10s., and £13 10s. These samples can be seen at this office by any one interested in the trade.

In Norway and Sweden different kinds of wood pulps are made, viz.: soda pulp and mechanical pulp, these latter being quoted on the 14th June, 1893, at about 40s. to 60s. per ton.

The different qualities of wood pulp are legion, and it seems there is not much difficulty in finding a market for all that is made.

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It is stated that the consumption of wood pulp in Great Britain is at present enormous, and is increasing rapidly, more having been imported during the past year than ever before. The use of rags has fallen off, partly owing to the restrictions that have been imposed upon the importation thereof from cholera-infected countries, such restrictions remaining still in force, and may continue for an indefinite period. It would also appear that there is a large demand for the better quality of pulp in the United States, large quantities being shipped there from Germany, while, though at the same time the United States export pulp to Europe, the quantity manufactured is not equal to the home demand.

Appended are quotations from the High Commissiener's letter bearing date June 14th, 1893.

W. G. PARMELEE,
Deputy Minister.

Extract from Sir Charles Tupper's letter :—

I have been making some inquiry as to the demand for wood pulp of various qualities in this country, and find that most of the product is at present imported from Germany and Scandinavia.

I have obtained some samples of German wood pulp, which I send you, and I also quote a letter explanatory of them, that has been received from manufacturers of paper in a large way of business :—

“The best sulphite pulps are undoubtedly made in Germany. Large quantities are also made in Scandinavia and Austria, those from the latter country being also very good. In Norway and Sweden different kinds of wood pulps are turned out, viz., soda pulp and mechanical pulp, the latter being worth from 40s. to 60s. per ton, and it is used in very common news and printings. We do not use the qualities. The samples we sent you represent about the best qualities of sulphite pulps in an unbleached state. We use a large portion without being bleached in our work here, and where it is necessary to have bleached pulps, we find it very much more economical to bleach it ourselves than pay high prices for it in a bleached state.

“The consumption of wood pulp in this country at present is enormous and is increasing to a tremendous extent, and the employment of rags is in consequence falling off.

“Other materials have been affected by the use of wood pulps, such as esparto, but not to anything like the same extent as rags. Again, more wood pulp has been purchased in this country and America during the past twelve months than ever before, owing to the restrictions imposed by the representative governments upon the importation of rags from cholera-infected countries, and these restrictions yet remain in force, and may continue to be enforced for an indefinite period.

“The different qualities and brands of wood pulps are legion. We have not much experience here of the commoner kinds, but from what we understand, there seems to be not much difficulty in finding a market for all that is made.”

In regard to Canada finding a ready market for their goods in England I am not in a position to know much about this question, but I have an opinion on the matter, and it is this: I feel confident that in the near future Canada should prove a very formidable rival to Europe in the manufacture of wood pulps. To my mind there is nothing to prevent this being brought about. Canada possesses the first essential in an unlimited degree. After this, there is no reason why they should not after a time compete with their surplus production against Europe on their own ground.

The United States already manufacture a large quantity but not nearly so much as they require. At present they are not serious competitors against Europe even in their own country.

JOHN DYKE, AGENT AT LIVERPOOL, ON CANADIAN WOOD PULP.

(From Department of Trade and Commerce Report, 1893.)

In previous reports I have alluded to the trade which might be done in wood pulp. The imports continue to increase, the figures being 156,609 tons in 1891, 190,946 tons

in 1892 and 215,584 tons in 1893, the value of the latter quantity being given as £1,180,310. I am glad to state that the Canadian makers of wood pulp have made a good start during the past season in commencing this trade, and I have used every means in my power to assist them, and I hope in my next report to be able to say that they have acquired a considerable portion of the large sum of money which is annually paid to foreign countries for this commodity.

WOOD PULP IN NORWAY AND SWEDEN.

(*From Department of Trade and Commerce Report, 1893.*)

There was reported a rise in 1892 on the average price of wood pulp to the extent of from 4s. 5d. to 8s. 11d. per ton for dry pulp, the average price having been £3 18s. 11d. per ton, f.o.b. More chemical and mechanical pulp was sold to Great Britain during this year than during the year previous. The number of pulp mills reported as working was 53. For dry sulphite the price per ton quoted has been, {first quality a little over £10, and about from £9 15s. to £10 for second quality. Dry unmixed sulphate pulps are quoted at from £9 14s. to £10 for first quality, and £9 3s. to £9 9s. for second quality. It is stated that there were 11 mills producing sulphite, and 4 producing sulphate pulp. Including Swedish goods the quantity of cellulose was about 20,000 tons of dry, and 8,500 of wet.

NEW BRUNSWICK CROWN LAND COMMISSIONERS ON PULPWOOD.

(*From New Brunswick Crown Land Report, 1892.*)

"We are firmly of opinion that the present value of the timber upon the Crown lands is considerably in excess of the rate or price for stumpage now obtained therefor, and if it were husbanded, a rate of stumpage very much larger—perhaps double the present rate—would be realized within a few years. We base this opinion, first, upon the rapidly decreasing spruce areas of New York and the New England States, which with New Brunswick, Nova Scotia and part of Quebec, are the only sections of North America in which this wood grows to any large extent; second, the immense growth of the wood pulp business, which now absorbs one-third of the spruce logs procured in New York and the New England States, which last year amounted to 1,250,000 superficial feet, a portion of the supply for which must soon be sought in this province; third, the probability of New Brunswick lumber being, in the near future, admitted into the United States free of duty; fourth, the sure advance of values that must come with increased consumption, coupled with the diminished production in New York and New England on account of the scarcity of timber.

"In this connection we cannot too strongly impress upon Your Honour the necessity of a strict enforcement of the law against the cutting of undersized trees for pulpwood, as well as for piling. The manufacturers of pulp inform us that they prefer the larger logs for their raw material, and it is, therefore, both short-sighted and wasteful to cut immature trees for that purpose. It has also come to our knowledge that government scalers take account of spruce under legal size, and fail to direct operator's attention to their violation of the law. To correct this abuse we advise that in all such cases double stumpage be charged."*

PULP AND PULP MAKING.

BY J. H. LEFEBVRE.

(*From Montreal Gazette, 10th November, 1894.*)

Mr. J. H. Lefebvre, C.E., yesterday afternoon read before the Chambre de Commerce, an interesting paper on the pulp industry, a subject of great and growing

* The recommendation of the commission had its effect. By the new form of license issued in 1893 no spruce (or pine) tree may be cut, "even for piling," under a length of 18 feet with ten inches diameter at small end, under penalty of double stumpage and forfeiture of license.

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importance to the country. Mr. Lefebvre began by referring to the establishment of pulp making in Scandinavia, to which most European countries now look for the raw material used in their paper mills. Mr. Lefebvre traced the revolution in the art of paper-making on the continent to the time of the civil war in the United States, where the demand for news of the great conflict led not only to an enlargement of old, but to the creation of new papers. Other publications also increased in size and number, and soon paper manufacturers found it impossible to meet the ever increasing demand for their goods. Rags, cotton waste and straw were neither sufficient nor cheap enough. Manufacturers first tried to utilize vegetable fibres and grasses, especially espartero, which they treated by the soda process. This process, perfected in Germany by the chemist Mitscherlich, was finally adapted to wood, causing a radical change in the manufacture of paper, the cost of which was also considerably reduced. In a word, wood paper was invented. But it was still too costly in production to meet the needs of the case. Further research led to the discovery of ground or mechanical pulp, which Mr. Lefebvre characterized as one of the greatest discoveries of the age. Nearly all the printing paper and a large part of the writing paper is made of wood pulp. Chemical pulp enters to the extent of thirty to forty per cent, and ground or mechanical pulp to sixty or seventy per cent in the composition of paper. Newspaper, which was sold in 1860 at 15 to 16 cents a pound, now sells for three cents. By these discoveries, the cheap journal and the cheap book were made possible.

Mr. Lefebvre said three things were necessary to the success of the pulp industry, suitable wood, extensive water power and cheap labour.

The different kinds of wood suitable for the manufacture of pulp are white and black spruce, Canada balsam, poplar, aspen and pine. Spruce and balsam are the most valuable, on account of the special quality of their fibre, and also on account of their colour. These comparatively soft woods are easily ground. Poplar and aspen have the same property, but they are faulty on account of knots and black veins, which spoil the colour of the paper. Pine is used only in the manufacture of chemical pulp. It gives a good pulp, but the process required to bleach it is rather expensive. Moreover, this wood is too high priced to be used profitably in the manufacture of paper. With the low rate of the present market for paper, pulp manufacturers require wood of small value, and, hence, spruce and balsam are the most profitable, and, in fact, indispensable in the business.

Considerable water powers are also required. To run a mill capable of producing twenty-five to thirty tons of ground pulp per twenty-four hours, takes a motive power of from 2,500 to 3,000 horse-power. The generation of such motive power by means of steam would be a costly matter, and in practice, it is acknowledged that pulp can be manufactured profitably in those places only where power can be supplied by water. Cheap labour is also an essential condition of success in this industry, which employs a large number of hands in comparison with the value of the output.

All the elements indispensable to the success of pulp manufacture are to be found in Canada, besides particular additional advantages. Our immense forests of coniferous trees contain a practically inexhaustible supply of the different kinds of wood required in this line of manufacture. They are, moreover, of a superior quality and very much sought after by manufacturers of the United States, who, in the year 1893, bought from us to the extent of \$454,253. The best proof of the excellent quality of the Canadian wood for pulp manufacturing purposes lies in the yearly increase of the American importations. Exportation to the United States was inaugurated some four years ago. The figures for 1890 are \$57,197, \$170,636 in 1891, \$183,312 in 1892, and, as above stated, in 1893, they reached the sum of \$454,253. The tables of Trade and Navigation for 1894 are not yet published, but it is an acknowledged fact that the exportation of that year extended considerably beyond that of 1893. With regard to quantity and quality, Canada therefore ranks before our neighbour, and is equally, if not better situated than Norway and Sweden, who, up to this time, had monopolized this industry, operating sixty-nine mills throughout the united countries. If the price obtained in England be taken as a criterion, Canadian wood produces better pulp than that of Norway and Sweden, for in 1893 Canadian pulp was sold in England at an average of \$24.80 a ton, as against \$20.77 for the Scandinavian product.

Mr. Lefebvre then detailed the advantages possessed by Quebec in the way of water power, wood and labour, and then went on to show that though the United States duty practically closed the market to our pulp manufacturers, Canada had free access to the markets of England, France and Belgium. Great Britain imported 215,920 tons of wood pulp in 1893, and France 106,049 tons, forming a total of 321,969 tons for those two countries. Belgium, Spain, Italy and other European countries imported at least 200,000 tons, so that the total import exceeds 500,000 tons yearly. And it increases constantly. The importations in England were 121,534 tons in 1888, 156,609 tons in 1890, 190,946 tons in 1892, 215,920 tons in 1893, or an increase of 77 per cent over the importation of 1888. This increase may continue for a long time before any glut in the English market can occur. Thus in 1893, outside of the 215,920 tons of pulp already mentioned, England imported 20,750 tons of linen and cotton rags, 185,450 tons of esparto and 30,358 tons of other materials and pulp of rags, or in all 236,558 tons. And yet this proved to be an inadequate supply, for the Blue Books show that during the same year (1893) there were imported in that country 146,644 tons of paper and pasteboard. The quantity of pulp necessary for this manufacture would have required eighteen mills, running with a motive power of from 2,500 to 3,000 horse power each, and to produce the quantity of pulp represented by the 236,558 tons of raw material imported to complete the supply of the paper mills of Great Britain it would require thirty other pulp manufactures of the same capacity. There are at the present moment only two establishments of the kind in the Dominion of Canada which manufacture for exportation to England, one in the province of Quebec, operated by Americans, and another in Nova Scotia. There is, therefore, room for scores of others without danger of glutting the English market. And then there would still remain the markets of the other European countries which can take yearly over 200,000 tons.

Taking as a basis of calculation the figures given by the official returns of trade, pulp exported from Canada sold in England in 1893 at an average price of \$24.80 per ton. For the 15th September last, the *World's Paper Trade Review* quoted £5 to £5 10s., according to quality, or from \$24.30 to \$26.90 per ton. In those parts of the province of Quebec in close connection with seaports, it is possible to manufacture mechanical pulp or ground pulp and deliver it in England for \$15 to \$16 per ton, leaving a margin of from \$8 to \$10 to pay interest on capital invested and management expenses. A 2,500 horse power mill can easily turn out 25 tons of pulp per 24 hours, and therefore give a benefit of from \$200 to \$250 per day. Are there in the manufacturing industry other lines capable of showing similar results?

Mr. Lefebvre dwelt on the advantages to colonization, commercial and transportation interests of the development of pulp making and exportation. He dwelt on the position of the United States towards Canada. The United States took large quantities of spruce logs or raw material, but in the last three years sold us paper and paper articles as follows: \$648,043 in 1891, \$714,474 in 1892, \$730,433 in 1893.

During the same period they purchased from us in pulp-wood, as shown by the figures already mentioned, to the extent of: \$170,636 in 1891, \$183,312 in 1892, \$454,253 in 1893.

The conclusion to be drawn from these figures is obvious. The Americans purchased their wood from us, manufacturing therefrom the paper, which is afterwards sold to us, they retaining all the benefits, profits and advantages adhering to such manufacture. The anomaly, said Mr. Lefebvre, is striking. To remedy it, he advocates the re-imposition of the differential rate of dues levied on spruce logs.

Concluding, Mr. Lefebvre said: The province of Quebec with its magnificent forest trees, cheap timber, its unlimited water powers, cheap labour, numerous seaports and low rates of ocean freights, offers exceptional advantages in the manufacture of pulp for export purposes to Europe, and can advantageously compete with Scandinavia on the markets of the old countries. This is one of the soundest and most remunerative industries, worthy of the most favourable consideration of capitalists.

Forest wealth of Canada.

BY-PRODUCTS OF THE WOODS.

(From *New York Evening Post.*)

A fact generally overlooked by those interested in the preservation of our forests and woodlands is that many of the minor products of our trees equal in value that of the lumber and timber, and that in the aggregate they make as great a demand upon the forests as the recognized needs of the lumber merchant. Until comparatively recently many of these by-products were not utilized, but were allowed to go to waste after the timber and lumber were secured. The real wealth of the woods is just beginning to be realized, and as the country becomes more thickly settled and timber more valuable many other new forest products that are not now utilized at all will be converted into money.

No country has been so prodigal as the United States in the use of wood for fuel, and this has probably been the heaviest drain upon the woods in the past. In European countries the firewood consists chiefly of inferior material, such as brush and small fagots, but here we often use the best. In nearly nine-tenths of the rural districts the farming classes use wood almost entirely for fuel, taking only the largest limbs, and very often the trunks of the trees. Such waste would not be tolerated for an instant in most of the old countries, and the inhabitants would look upon it almost in the same light as a New York farmer would if his neighbour should use good hay and straw for cooking his breakfast. Even some of our factories, steamboats and railroads use valuable wood as fuel, which greatly increases the consumption. While this wasteful use of wood is going on in sections of the country, considerable quantities of firewood are being imported, amounting in all to nearly \$500,000 worth a year. We also import over \$50,000 worth of wood ashes for general use, after wastefully burning our firewood and throwing the ashes away with other garbage.

Another great drain upon our forests is the manufacture of the so-called "naval stores," which include all of the resinous products of the coniferous trees. The southern States furnish most of these products, and they practically have a monopoly of the whole business. Small quantities of naval stores are produced in Russia, France, Austria, Portugal, Ceylon and Galicia, but they are very insignificant compared with the annual output of the United States. These naval stores are not in as much demand since the age of iron and steel boatbuilding has been ushered in, and this may be looked upon as fortunate, considering the rapid decrease in the supplies. But the turpentine, pitch, brewers' pitch, tar, and oil of tar are all used more or less in the arts, medicines and as insecticides. The demand for these products will consequently be pretty well sustained even though our business of building wooden vessels becomes a lost art.

The manufacture of tan bark is one of the most important industries connected with the utilization of the forest products, and vast quantities of this are annually demanded. In addition to our own supply we import nearly \$250,000 worth in the shape of hemlock from Canada. In the pitch regions of our country a new industry is springing up which promises to increase vastly in the future. It is the simple utilization of the enormous fields of fat pine logs and stumps from which all resinous matter has been extracted. These have in many cases in the past been allowed to decay where they happened to fall. This "lightwood" or fat pine as it is called, is cut up into small bundles and retailed as firewood in most of our eastern cities. A machine is invented for shaving up the logs and stumps into appropriate lengths. The pieces are then tied up in small bundles and sent to the cities by ships. It is said that at the rate of one cent a bundle the old stumps will yield nearly as much profit as the trees sold for as timber or for other uses.

The use of spruce forests for making paper pulp, from which is manufactured most of our paper supplied to periodicals, is well known, and represents an industry that will be limited only by the supply of wood. Already great inroads have been made upon the spruce forests, so that without systematic cultivation of them the raw material for this cheap paper will soon give out. In Germany, where the wood pulp is also made in large quantities, the forester's art is understood better than in this country, and the cultivation of spruce forests is carried on so carefully that the supply is always kept equal

to the demand. Instead of destroying the spruce forests there, they simply thin them out, taking only the large, matured trees, while the young saplings are allowed to remain for future use.

The hardwoods yield many by-products as well as the soft kinds, and especially in producing the charcoal for our iron furnaces. We also make quantities of cedar oil, wood alcohol, or pyroligneous acid, and oil of sassafras. In the manufacture of paints, soaps, varnishes, medicines, perfumes and disinfectants, all of these products of the hardwoods are in demand. The forests of hardwoods are more limited in extent in this country than the soft woods, but they meet with sufficient injury to threaten them with entire extinction. There are considerable quantities of wood used for the manufacture of hoops, barrels, tubs and pails, and only the hard species of trees are available for this work. A curious fact is that most of the poles used by hop-growers to support their vines are imported from Canada, or at least by those growers living along the great lakes. Many poles are used for the vineyards, but these so far have been gathered on home territory.

There are several other minor by-products that are used, but they represent no great value yet, although their future has not been determined. In the aggregate all these by-products of the forests are of greater value than the lumber and timber annually cut.

QUEER USES OF PAPER AND PULP.

(From New York Sun.)

Nothing of recent years has given a greater incentive to the exercise of the forester's art than the discovery of the method of making paper out of wood pulp. Wood pulp to-day supplies 20,000 weekly and daily periodicals with paper, and each year the number increases from 10 to 20 per cent, making the demand upon the spruce forests so great as to threaten their extinction unless intelligent efforts are made to preserve them. In Germany, where the manufacture of wood pulp is even greater than in this country, the forester's art is exercised so that the forests steadily keep up the supply. It is to imitate this method of using, but not abusing, the natural spruce forests here that paper makers are trying to buy up the large areas of woodland covered by these trees.

In the arts and trades new uses are found for paper every year, so that the demand increases as fast as the production. The records at the Patent Office in Washington show an astonishing number of uses to which paper is put, and applications are made for patents for other queer inventions that never see the light of day.

Cigar boxes are made of paper and flavoured with cedar oil to give the impression that they are manufactured of cedar. Medals are pressed out of paper and then coated with a preparation to make them resemble either silver or bronze. Similarly cornices, panels, and friezes are moulded out of the paper pulp, and both interior and exterior architectural effects are obtained at a relatively low cost by this method.

The manufacture of car wheels out of paper is an old story. It is probably the good results obtained with them that suggested the idea of coating ironclad men-of-war with paper. Inventors are now working on the problem of finding a preparation either of compressed paper or of compressed ramie that will form a bullet-proof coating for war vessels. The car wheels and steampipes made of paper admit of being moulded and formed to suit any purpose, and it is suggested that by using paper for coating armour plate the surface could be formed like fish scales with tiny overlapping plates. The surface could be made rough or smooth, and besides giving more strength to the steel armour the paper coating would protect the metal from corrosion.

Another queer use to which paper promises to be put is in the manufacture of telegraph poles. The paper poles are hollow, and are made from paper pulp, and then coated with silicate of potash to preserve them. Electric conduits in successful use are made out of paper pulp, and also steam and water pipes of great strength and durability. Paper roofing material is so common that it is unnecessary to mention it, and also paper pails, basins and pans.

Forest wealth of Canada.

Undertakers are using cheap coffins pressed out of paper pulp. When polished and stained such coffins are almost as handsome as those of wood. They last longer in the ground than coffins of wood or metal, and they can be hermetically sealed better than the heavy metal coffins.

Paper boats are generally looked upon as playthings for very small children, but large, commodious, staunch boats are now manufactured out of paper pulp. They can resist the water, and are lighter than wooden or metal boats. Lead pencils and cigar holders made of paper are in daily use, and even carpets and mattresses are manufactured in a limited way out of paper. The mattresses are made of paper pulp and ordinary sponge, with springs embedded in the composition. Artificial straws for drinking iced beverages, which are superior to the natural straws, are being placed on the market, and so is a peculiar cloth paper for printing bank notes on.

APPENDIX "N."

MATCH-MAKING.

(From Montreal Gazette—21st November, 1894.)

There is no country as well equipped for this business on a large scale as is Canada. It has for the purpose unrivalled supplies of wood best fitted for the industry and cheap; plentiful and cheap labour; unused water power at convenient points, with excellent lines of transportation inland as well as for foreign markets, such as South America, West Indies, Australia, Japan, China, England and the continent, and likely too could compete even in the United States with local manufacturers there. The magnitude of the business is hardly appreciated, and throughout the world involves a capital of over \$50,000,000. In France it is carried on by a concession to a company from the Government and is supervised by them, prices regulated, etc. The company in France has a capital of 45,000,000 francs, equal to \$9,000,000, and some 6,000 to 7,000 people are employed. In Austria it is a business even larger. Germany is also in the first rank, with Belgium, Norway and Sweden largely engaged in the business. In England two large companies do an enormous business, getting some of the needed material from Canada, but not the finished article; but in England there are yet imported \$1,500,000 of the finished goods that ought to come from Canada. In the United States the business is enormous, and it is dominated by the Diamond Match Company, of Akron, Ohio, with factories scattered over the entire United States and owning large tracks of standing pine so as to ensure supplies. Some idea of the extent of this company's business, which, from a few scattered concerns, has grown by consolidations and additions into its present proportions, may be formed from the fact that in the late autumn forest fires they had 90,000,000 feet of standing pine burned, and the fact that their last business statement showed a capital of \$9,000,000 invested, a surplus accumulated of \$1,100,000, while the market price of its immense capital is \$145 to \$147 per share of \$100 paid, and it is reported that its present year's earnings, in hard times, exceed the previous year by \$1,000,000. All this should be satisfactory evidence of the lucrativeness of the business, which is further confirmed by a recent press despatch that the president, Mr. Barber, considered one of the magnates of business interests in the United States, is about to sail for Liverpool, England, to build the largest factory for that business in the world, and further, that Edwin Gould, son of the late Jay Gould, together with his brothers and associates, have organized a new and large company to engage in the business. Surely all this should tend to encourage and stimulate the growth in Canada of a business for which the country is peculiarly adapted, and which in every way shows exceptional prosperity, and if by means thereof there could be added to Canada's trade an increase in another finished article in place of furnishing cheap new material for others to build industries of finished products and furnishing thereby employment it would be the development of one of many other industries that could be named.

APPENDIX "O."

BRITISH COLUMBIA TIMBER RESOURCES.

(*R. E. Gosnell in World, B.C., Annual.*)

British Columbia may be said to possess the greatest compact reserve of timber in the world, and for the reason that heretofore merely a fringe of timber has been cut, and had it not been for forest fires that in years gone by devastated a considerable portion of the interior, within the dry belt, the supply of timber available for commercial purposes would have been nearly double what it is. However, as the coast possessed the great proportion of choice timber trees and accessible, the ravages of fire have not been appreciable to anything like the extent they have been in the interior.

The coast as far north as Alaska is heavily timbered, the forest line following the indents and river valleys and fringing the mountain sides. Logging, so far extends to Knight's Inlet, a point on the mainland opposite the northern end of Vancouver Island. Here the Douglas fir disappears and the cypress takes its place. North of this cedar, spruce and hemlock are the principal timber trees.

The principal limits and the great bulk of the timber are found on Vancouver Island, principally located and running up the valleys of Cowichan, Chemainus, Nanaimo, Englishman's, Little Qualicum, Big Qualicum, Comox, Oyster, Campbell, Salmon, Adams and Nimkish rivers, and French and Black creeks, and other streams and tributaries of the above rivers and in the Alberni valley; in Westminster district—along the Fraser and Pitt rivers, on Burrard Inlet, in South Vancouver, and on Howe Sound; the principal inlets of the coast as far as Knight's Inlet; and on the islands in the Gulf of Georgia—notably, Cracow, Valdez and Harwick.

A description of the various timbers in British Columbia, with their distribution, will be interesting. Douglas fir (*Pseudotsuga Douglasii*) is named after the noted botanist of that name and not Sir James Douglas, as many imagine. It has a very wide distribution, being found from the coast to the summit of the Rocky Mountain range. On the coast it attains immense proportions, very high and clear of imperfections, sometimes towering three hundred feet high and having a base circumference of fifty feet. The best averages, however, are one hundred and fifty feet clear of limbs, and five to six feet in diameter. This is the staple timber of our commerce, often classed as Oregon pine, and having about the same specific gravity and strength as oak, a wide range of usefulness, and being especially adapted for construction work, where strength is required. Prof. Macoun classifies it as standing midway between the spruce and balsam, and states it as his opinion that it would make a valuable paper-making tree. The cedar has two important representatives, red cedar (*Thuja gigantea*) and yellow cedar or cypress (*Thuja cypressis*).* The former is found all over British Columbia, but reaches its greatest majesty on the coast, where it can outgirth any other tree. Besides being a valuable timber of commerce for finishing purposes and shingles, it is the settler's greatest friend, out of which he can build his house, make his furniture and fence his farm, and that without any other aid than an axe, a saw and a hoe. Invaluable as red cedar is, yellow cedar is still more valuable. It is very strong, wonderfully durable, makes a beautiful finishing wood and grows to great size. It is found in great quantities in the interior of Vancouver Island, and on Mount Benson comes within 1,200 feet of the sea. Towards the north of the island, on the Queen Charlotte Islands and on the north coast of the mainland, it is found lower down and is very plentiful. It is out of the cypress that the Hydah Indians build their great war canoes, many of which have an eight-foot beam, are sixty feet long and can stem the heaviest seas of the

* *Thuja excelsa.*

Forest wealth of Canada.

coast waters. Probably the next most useful tree is the white spruce (*Picea Sitchensis*). It is found interspersing the forests of fir and other trees, principally in low, swampy and delta lands, but no place in very large quantities. It attains a circumference almost equal to the Douglas fir but does not grow so tall or clear of branches. It makes beautiful lumber for doors, dressing, etc., and is largely used for making salmon and fruit boxes, as well as barrels. It will also provide excellent material for paper-making. The Menzies spruce increases in quantity as you go north. Hemlock (*Tsuga Mertensiana*) is common, and up the coast is found in large quantities. It is a useful timber, but answering about the same purposes as Douglas fir, it will not come into use until the latter is exhausted. White pine (*Pinus monticola*) is very valuable, but limited. Balsam (*Abies nobilis*) is widely distributed, being found principally in river valleys, but is commercially of but little value. With the exception of the yew (*Taxus brevifolia*) and tamarack, the above are the principal representatives of the family of evergreens found in British Columbia, and these latter are by no means unimportant. Of deciduous trees, the large leaf maple (*Acer macrophyllum*), vine maple (*Acer circinatum*), alder (*Alnus rubra*), crab apple (*Pirus rivularis*), oak (*Quercus Garryana*), two varieties of poplar or cottonwood (*Populus balsamifera* and *trichocarpa*), aspen poplar (*Populus tremuloides*), arbutus (*Arbutus Menziesii*) and birch, willow and juniper. The maple, alder and arbutus make beautiful cabinet woods, and though not abundant are very popular finishings. Poplar, or cottonwood as it is commonly called, is used for the manufacture of "Excelsior" and could be extensively used for paper-making. The aspen poplar is common on Vancouver Island and in the northern interior. The oak is a stunted, gnarled species, only found in the southern part of the island. It is not useful but is very picturesque. Crab-apple is plentiful in swampy places around ponds, beaver meadows and along river banks. Nearly all the hardwoods referred to are usually found in bottom lands and their presence indicates fruitfulness. There is no part of British Columbia where the timber supply is not sufficient for local demands.

A most remarkable feature of the timber is not the extent so much as its density. As high as 500,000 feet have been taken off a single acre, while about 75,000 feet would be an average yield.

There are fifty-one saw-mills in the province, with a daily capacity of 3,000,000 feet. Of these, thirty-five are on the coast, having a daily capacity of between 1,750,000 feet and 2,000,000 feet. Last year the whole cut of the province was 65,000,000 feet. It has been estimated that there are over 100,000,000,000 feet of good timber in sight and that the present saw-mills running fully employed, and making an average output, would take between one hundred and fifty and two hundred years to exhaust the present supply. So that there may be no immediate anxiety about what our houses are to be built of in the near future.

However, when the Nicaraguan canal shall have been completed and the foreign demand, now and for some time back very much depressed, shall have revived, British Columbia, being practically the final resort of lumbermen on this continent, may expect to experience a boom in her lumber industry greater than was ever known in America. When that time comes, those who own large timber limits—and there are a good many who do—will reap a rich harvest.

TIMBER REGULATIONS.

Leases of surveyed, unpre-empted crown timber lands may be obtained for a period not exceeding twenty-one years by those tendering the highest cash bonus, subject to the payment of an annual rental of 10 cents per acre and a royalty of 50 cents per thousand feet on the scaled measurement of the logs. The lessee, if not actually engaged in the manufacture of lumber, must, to retain his limits, erect a mill capable of cutting at least 1,000 feet a day for every 400 acres of land included in the lease, within two years, and give a guarantee equivalent to 10 cents an acre that he will do so before obtaining his lease.

A timber license may be granted for 1,000 acres for four years, on payment of \$10 annually and 15 cents for each tree (except hemlock), and no person, not licensed, may

cut timber on crown lands except for farming and mining purposes. Only one license at one time is obtainable, and is not transferable. A special license for 1,000 acres for one year may be obtained by application in the *Official Gazette*, and the payment of \$50 to the Chief Commissioner of Lands and Works.

LUMBER FLEET, 1892.

In all forty-six vessels, loaded principally in Burrard Inlet, the aggregate cargo being 40,420,091 feet for export, or an average cargo of 878,697 feet per vessel. The value of the year's export, as above, was \$411,351, or an average of \$8,943 per vessel. The gross tonnage of lumber ships was 50,306 tons, or an average tonnage of 1,311 tons each.

In addition to the regular export by vessels and the local consumption, British Columbia lumber and manufactures thereof are finding a market in Eastern Canada for shingles, house and office finishings, car sills, spars and timbers for heavy construction work, and will ultimately find a market in many other parts of the world. Another industry growing out of the forests of this country has already been treated upon, and that is paper-making. The woods for utilization in this way are Douglas fir, spruce, poplar, birch and tamarack, of which there is a plentiful supply.

APPENDIX "P."

FOREST RESERVES IN THE UNITED STATES.

(By Robert Underwood Johnson, in *Review of Reviews*, Dec., 1894.)

It is related of General Sherman that when he was asked if he would like to be President he replied in the negative and gave as his reason that the presidency was not really a position of power. Many would differ with that opinion. What President Cleveland has just done, for instance, towards rescuing the country from the spoils system is an exercise of power of the most far-reaching and beneficent sort. The General himself lived to see Congress confer upon the executive in the McKinley bill, so novel and considerable a power in the direction of control over international commerce as to awaken grave concern on other than partisan grounds and to lead to its repeal. A few days after Sherman's death, viz., on March 3rd, 1891—a substantial extension of the President's prerogative was made in the following provision:—

"That the President of the United States may, from time to time, set apart and reserve in any state or territory having public land bearing forests, in any part of the public lands, wholly or in part covered with timber or undergrowth, whether of commercial value or not, as public reservations; and the President shall, by public proclamation, declare the establishment of such reservation and the limits thereof."

Under this Act—a happy thought of the present efficient assistant land commissioner, Hon. E. A. Bowers—the power of the President to be of service to his country is so great that many a not unambitious man would be satisfied to possess it, with or without the Presidency. And as the action of the executive may at any time be reviewed, and if desirable nullified by Congress, there is no danger herein of any peril to the public interests.

On the contrary, the advantage to the public interests is enormous. President Harrison's exercise of his discretion under this law was intelligent and judicious. At the suggestion of secretary Noble, who was himself incited thereto by advocates of forest preservation, the President made a series of reserves, the value of which to the adjoining regions of lower altitude is simply incalculable. Passing over such as had chiefly the virtue of being reservations of great scenery from private encroachment, such as the incomparable Grand Cañon of the Colorado and the beautiful region including Mount Rainier (Tacoma and Seattle contending so hotly over the name of the new tract that it had to be called "Pacific Forest Reserve,") we come to those made chiefly for the con-

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reservation of water supply—a series of five in Colorado and three in California. Of these, the greatest is the "Sierra Reserve," extending for 200 miles northward, along the high altitudes of the mountains to the southern boundary of the Yosemite National Park. This tract comprises over 4,000,000 acres and its imperial proportions are more evident when one realizes that it is nearly five times as large as Rhode Island, half as large again as Connecticut, and two-thirds as large as New Jersey. And yet this territory, including as it does, magnificent forests of sequoias and the noble King's River Cañon, which John Muir, the explorer, calls "the rival of Yosemite," contains probably not a square mile that ought not to be devoted to reservation purposes. Next to Muir himself, who knows the region by heart, and I think made the original suggestion of this reserve, there was no better authority on the subject than the late Senator George Hearst. I remember how emphatically he spoke to me in favour of such a reserve in 1890, in Washington. I had come to him to solicit his influence in favour of the plan of a Yosemite National Park to surround, but not include the old grant of the valley made to California in 1864. This grant is bounded by a coffin-shaped line running one mile back from the rim of the gorge, and thus does not include the magnificent scenery adjoining and does not even give control over the headwaters of the great Yosemite falls.

Sitting about our camp fire on the upper Tuolumne, in June, 1889, Muir and I determined to revive a former scheme, which had fallen through, to make a large reservation in this region, and it was substantially Muir's plan that was formally adopted by Congress, on October 1st, 1890. The new park thus made is as large as the State of Rhode Island, and twenty times as large as the State grant. When I mentioned the subject to Senator Hearst, he broke out: "Reserve the Tuolumne? Why, I'd favour reserving the whole of the Sierra top from Shasta down. It includes very little agricultural land, the region has been pretty thoroughly prospected, and, of course, mining and other private rights would not be interfered with." It may be imagined that in urging the Yosemite National Park scheme, I did not fail to make use of this pronouncement of the shrewd and far-sighted Californian.

That public sentiment is rapidly coming up abreast of Senator Hearst's opinion, is proved by the favourable reception of the presidential proclamations establishing the reserves, which in all now comprise over 17,000,000 acres, in seventeen tracts, located in Arizona, California, Colorado, Montana, New Mexico, Oregon, Utah, Washington and Wyoming. This action was particularly well received in California. It was to be expected that a few would cry out against the policy. Owners of sheep who desired to pasture their flocks upon the public domain, to the extraordinary injury of it; hewers of Government timber, willing to fell a giant tree to obtain its seed for foreign sale at \$8 a pound; fraudulent "settlers," who gave picnics to acquaintances for the purpose of "taking up" land which their guests were never again to see—these few barbarians were of course indignant at the interference with their "vested rights," but disinterested people, and the large population in the foothills who saw in the reservation the perpetual source of water supply for which every summer they had been calling upon Hercules, rejoiced with one voice at the salvation of the San Joaquin valley. Without irrigation that valley was merely a poor cattle pasture; to-day the portions reclaimed by irrigation are among the most productive in the world.

Nor has President Cleveland been indifferent to the great advantage of this policy. During his administration but one large reserve has been made, yet it is in point of size the most considerable of all. It is situated in Oregon, on the ridge of the Cascade range, and comprises some 4,500,000 acres, and will do for that State what the Sierra reserve has done for California.

It is greatly to be hoped that the President will see his way clear to establish a third in Northern California, which shall reach from Yosemite to Mt. Shasta, and virtually connect the other two. Thus shall the great valleys of the Pacific slope be secure in a perpetuity of water supply and timber.

The question naturally arises:—Why should not this policy be systematically extended throughout the great west until the headwaters of every important river within national control is the seat of a forest reserve? As we have already seen, the President has the power, and thus far the voice of no intelligent person has been

raised against the policy. Let us consider on what grounds of necessity such sweeping action may be urged.

It is almost a superfluity of words to point to the well-recognized perils involved in the destruction of forests. Humboldt said: "In felling trees growing on the sides and summits of mountains, men, under all climes, prepare for subsequent generations two calamities at once—a lack of fuel and a want of water." China, India, Cyprus, Syria, North and South Africa have been conspicuous sufferers from this folly. The decay of the political ascendancy of Spain is attributed to the same cause, and the slopes of Andalusia, even now showing only a fuzzy growth of olives, are the scene of alternate floods and drought of great destructiveness. A similar story is told by the southern border lands of Austro-Hungary, by large sections of Italy, and especially by the South of France, where, in the last thirty years, thirty-five millions of dollars have been spent to reforest hills which were devastated to pay for Napoleon's wars, though the work is but half completed. The fall in the depth of the rivers of Central Europe—from 17 to 55 inches in fifty years—bears witness to the fate in store for us unless there is a radical change for the better in our public policy. In our own country, the disappearance of the empire that once flourished in Arizona and New Mexico, and the annual overflow of the Mississippi, Ohio and Red rivers, are attributed to deforestation. That the peril is not overstated, may be seen in a volume which every American legislator ought to know by heart—George P. Marsh's treatise, "The Earth as Modified by Human Action." Forty years ago Mr. Marsh said: "A desolation like that which has overwhelmed many once beautiful and fertile regions of Europe, awaits an important part of the territory of the United States, unless prompt measures are taken to check the action of destructive causes already in operation." Let any one who has attempted to keep pace with the subject say how far this fails of true prophecy—the prophecy which Mr. Froude thought an essential test of science. Expert authorities have gone so far as to fix twenty-five years hence as the period of virtual exhaustion of the timber supply at the present rate of depletion. It is not merely the intemperance of the axe with which we must reckon. Eighteen centuries ago the poet Horace warned his countrymen against exposing forests to the havoc of sheep—a warning which has come down the ages almost unheeded. Last of all, in this country, in the trail of both lumbermen and shepherd, more destructive than the edge of the axe or the spade of the sheep's hoof, comes the conflagration. One did not need the object lesson of the recent forest fires in the North-west, to realize that the public domain is daily exposed to a similar danger. Ride along any railway in the North-west and you may read the story in a record of blackened stumps or overhanging smoke. Not a summer passes without news of raging fires upon Government lands. The only wonder is how they ever cease. And yet with all this constant ravaging of the forest, our easy-going people do not realize the critical situation of the great West. Worst of all, the West itself does not realize it.

Statutes are not often enacted by Congress until the need for them is formulated into something like a truism in the public mind. Therefore, it needs to be reiterated to tediousness that the mountain forest has a more vital service to render than even its important function of furnishing timber. It is a source of life and health to the regions below. Its relations to agriculture, commerce, climate and social life, are most intimate and fundamental. "It may be considered as established," says Marsh, "that forests tend to mitigate, at least, within their own precincts, extremes of temperature, humidity and drought." Speaking of the electrical influence of trees, he observes that hailstorms, which appear to be always accompanied by electrical disturbances, "are believed in all countries particularly exposed to that scourge, to have become more frequent and destructive in proportion as the forests have been cleared," and he cites that one joint stock insurance company in Northern Italy, during seven years (1854-61), paid 6,500,000 francs for damage by hail. The influence of trees as a protection against malaria and as shelter to ground to the leeward, is also considered worth mention by Marsh, in whose judgment the climatic influence of their destruction has been of the largest importance, especially in Southern Europe.

In one significant respect the cause of forest reservation has indirectly made progress in Congress—in the grant at the last session of 1,000,000 acres of arid land to each of a num-

Forest wealth of Canada.

ber of western states for irrigation and colonization. This act commits Congress logically to the conservation of the water supply, since otherwise one would be offering the thirsty but an empty cup. In the light of such a pressing need, how ridiculous and yet how tragic was the action at the last session of certain representatives from western states in obstructing, by parliamentary tactics, the moderate (even too moderate) measure of conservation known as the McRae Bill. This Bill, which is still on the calendar of the House of Representatives, provides for the restriction and regulation of the sale of timber on the forest preserves in such manner as to insure the object and perpetuity of the reservations, sale to the highest bidder being substituted for the present loose system of issuing timber permits and careful provision being made for the needs of the *bond fide* settler. Instead of hesitating for a moment over a measure so manifestly in the general interest of their constituents these representatives would better have united in petitioning the President to extend the reservation system in the states which they represent, and in obtaining much needed legislation to secure for the reserves, already made or to be made, the most efficient and intelligent control, a system of control which shall produce an equal yield of lumber without destroying its source. In the absence of such legislation these reserves will exist only in name. The responsibility of Congress, let it be plainly said, is not longer to be concealed or evaded.

The McRae Bill, admirable as it is, is likely to prove only a temporary expedient, the good features of which may hereafter be embodied in our permanent forest policy. What is needed is a broad, thorough and practical—because imaginative—measure, which shall legislate for posterity and once for all shall run with the best scientific opinion. I believe that this is supplied by the scheme of Prof. Charles S. Sargent, of the Arnold Arboretum of Harvard University, whose census report on the subject of forests and whose "Silva of North America" have given him a unique position as an expert. This is a comprehensive plan by which the control of the reserves is to be transferred to the War Department. The army must defend them (does now theoretically defend them) against encroachment, as requisition is made by the Secretary of the Interior. How much simpler that the military should have initial control. The evil of the dual system now is that the permanent interest of the reserves must always be sacrificed to the temporary exigencies of public order. A strike in Sacramento or a petty quarrel on an Indian reservation would deprive the Yosemite National Park of the efficient military protection which it now enjoys. The Yellowstone National Park is admirably managed by a military detail. These two parks furnish all the precedent for the plan that is needed. I believe the seventeen forest reservations are virtually without patrol. The chief reason for placing them also in the hands of the military is that only thus can we provide for their care and culture on scientific principles. For this West Point offers a well-established system and means of education. It is not proposed that the military academy should be turned into a school of forestry, but that facilities should be provided for systematic instruction in the principles of the science, so that all graduates should know its elements, while certain others should be able intelligently to supervise the reservations incidental to their other duties, and to superintend practical work to be carried on by a body of men locally enlisted as a forest guard.

There is no alternative, except to let the forests remain the prey of destructive agencies, or else to establish a civil school with all its accompaniments of political manipulation. Surely the country is already too tired of the spoils system to wish more fuel to go into that flame. The army is the only hope. Its traditions of thoroughness and integrity may be relied upon for a rigid control in the public interest. Attention would be chiefly needed in the summer, when it is customary to undertake expeditions and establish camps for the good of the troops. To know the elements of forestry, what trees and that kind of trees to cut so as to yield an annual crop of timber without injuring the forest—this is something to be taught and learned, and something as clearly within the province of the military in time of peace as to build docks or bridges. What can be accomplished in the way of mere guard duty is to be seen in the Yosemite National Park, where an efficient troop of cavalry has put an end to the depredations on sheep and lumbermen, so that in four years the tract has resumed its natural appearance and conservative offices, while during the past summer, in defiance of law, 500,000 shee

were pastured on the adjoining unprotected Sierra Reserve. And yet this might easily have been prevented by a squad of soldiers, had such a detail been available.

The delay of Congress in providing for the care of the reservations, however, does not relieve the President of responsibility for delay in creating others. Let the imagination rest for a moment on the opportunity that Mr. Cleveland has. What a chance to serve the country and posterity. What unseen dangers may be averted and what blessings conferred upon generations to come. The warnings of science are imperative. The authority of law is ample. By one stroke of the pen he can make a reservation, for instance, at the headwaters of the Missouri, which, without interfering with private rights, shall control for all time for the public the sources of that great stream. The country would not fail to greet with favour a well-considered scheme for similar tracts in the entire west. Such action would be an honourable challenge to the patriotism and good sense of Congress, qualities which are never found wanting in a crisis; and the necessary legislation for the patrol and care of the reservations would be all the surer to follow by reason of the magnitude of the beneficent scheme.

APPENDIX "Q."

DOMINION PARKS AND FOREST RESERVES.

In consequence of the discovery of the hot mineral springs near Banff station, an Order in Council was passed on November 25th, 1885, reserving a tract of land in that region. Subsequently, by Act of Parliament, in 1887 (chapter 32) the "Rocky Mountains Park," including this tract, was set apart as a permanent reserve for a public park, comprising 260 square miles, being 26 miles long and 10 wide. It includes a number of mountains with peaks extending to an elevation of nearly 10,000 feet. The Bow River flows diagonally through it, with an easterly course, nearly fifteen miles long, and is joined within the park by its tributaries, the Spray River, the Cascade River and several creeks. The Minnewanka or Devil's Lake, more than ten miles long, by an average width of half a mile, empties itself by the Devil's creek or Minnewanka River, into the Cascade River. There are also the Vermillion Lake and other smaller bodies of water connected with the Bow River. Near the northeast end of the park the Ghost River crosses it with an easterly course of about twelve miles, and its south branch is also partly within the reserve where it takes its rise. Thus the forests which cover a large portion of the area are well situated for preserving the flow of these important headwaters. The preservation of these forests from fire is a remarkable feature in the history of this reservation. Mr. Geo. Stewart, D.L.S., the superintendent, in his yearly reports, repeatedly mentions the fact that forest fires outside the park have not spread within it, which he attributes to two reasons, the clearing away of dead trees, and the existence of fire breaks formed by the roads that have been opened to the different points of interest. This is an indication of the means by which the danger of the destruction of our forests by fire may be minimized. There has also been considerable planting of forest trees. The hot springs, the beautiful scenery and the many objects of interest, attract great numbers of visitors, besides the many invalids seeking it as a sanitarium.

In October, 1886, an Order in Council was passed, setting apart four additional mountain parks, or reservations, in the Rocky Mountains, as follows:—

1. A park at Mount Stephen, including the country surrounding the base of the mountain and adjacent picturesque points.
2. A reservation in the vicinity of the mountain known as Mount Sir Donald, taking in the loop of the railway and adjacent territory.
3. A sufficient area in the Eagle Pass to include Griffin and Three Valley Lakes, and adjoining points of interest.
4. The amphitheatre at the summit of the Selkirk Mountains.

These reservations all contain extensive forests protecting the headwaters of important rivers.

Forest wealth of Canada.

APPENDIX "R."

SUPPLY AND CONSUMPTION OF FOREST PRODUCTS IN THE UNITED STATES.

(By B. E. Fernow, U. S. Forestry Report for 1893.)

Regarding the supply of forest materials, which may be drawn from the virgin forests still in existence, we have no data. The difficulties of obtaining even the crudest approximations, except for certain species, as the white pine, the longleaf pine, the whitewood, etc., are not only great in the first place, for many reasons, but are still further increased by the fact that the methods of using the supplies change with their waning, with methods of transportation, and with other economic developments. Thus the statistics of white pine and longleaf supplies, given by the Tenth Census in 1880, were as approximately correct as could be expected, adverse criticisms notwithstanding; but the lengthening out of the supplies, especially of the white pine, beyond the time when those figures foretold their practical exhaustion, has been possible only through the reduction of the average merchantable log by from 27 to 57 per cent—i. e., while during the census year in Wisconsin (Wausau) for instance, the average log was, say, 200 feet per log or 18 inches in diameter, in 1893 it had dwindled down to 84 feet or 13 inches in diameter. While the census statistics were based on the then practice of taking nothing less than 10 inches in diameter, the lumbering is now extended to logs as low as 5 or 6 inches in diameter.

No more striking statement of the decline in white pine supplies could be made than to cite the number of feet in logs which passed the nine leading booms in the lower peninsula of Michigan in 1887, namely, 2,217,104,985 as against 505,134,656 feet in 1893, a decrease of nearly 80 per cent, chargeable no doubt in part to other modes of transportation, but nevertheless foreshadowing unmistakably the practical exhaustion of supplies.

EXTENT OF FOREST AREAS.

While we can not then with any degree of even approximate accuracy speak of the amounts of standing and growing timber, we have somewhat better (although far from accurate) data of the forest areas, from which at least the capacity of wood production may be surmised. But here, too, absence of knowledge as to the condition of these areas makes a statement of the actual supplies possibly on hand or growing mere guesswork. Not only are there to be distinguished the timber areas which contain supplies ready for the axe and for present consumption, but in the so-called second growth we must distinguish the areas which promise new supplies of value and those brush lands which are not only not growing a new timber crop, but on the contrary prevent the growth of timber and will for generations to come be mere waste lands.

It will appear astonishing to those who have not paid attention to the question of the settlement of this country to learn from the subjoined table that while of the total country only 18 per cent is improved, the better developed eastern part (east of Colorado) shows only 29 per cent improved, and even the long-settled Atlantic coast which we are apt to consider fully occupied, still possesses 65 per cent of unimproved land, of which we estimate 43 per cent as woodland, while the percentage of woodland for the whole country is 25. There would be woodland enough to satisfy our needs for many decades if attention were but paid to its rational use and to the recuperation of the cut-over areas; but the condition of the wooded areas, which have been culled, is well

known to be so poor, as far as market supplies are concerned, that for generations to come they must be left out of consideration.*

The following table, compiled from the most reliable sources of information attainable and correcting any previous statements made by this division, is intended to give information as to approximate relation of improved land, forest and waste land :—

*Elsewhere in the same report Mr. Fernow says :—

“ In the well-managed forests of Prussia (some 35,000,000 acres), largely stocked on poor land, the average total production of wood per acre for a long series of years has not been more than 21 cubic feet, but this includes branch wood, brush and roots, which are not used in our country. Of this, only 14 per cent, or hardly 3 cubic feet, represents material fit for the industrial uses; and we should add that in the United States firewood is also made from such material. In the Government forests of Prussia (some 8,000,000), exemplary in their management, the production reaches nearly 6 cubic feet. The highest wood production in German forests is reported from Baden (over only 4,330,000 acres of forest) with somewhat over 50 cubic feet of wood per acre per year. Assuming also a larger per cent of sizable timber, namely, 20 per cent, we would here find the annual production per acre of such material as we are in the habit of using at the rate of 10 cubic feet per acre. Competent writers on the subject, who believe that the Government reports understated the annual growth, have calculated the same to be as high as 55 cubic feet per acre (see report of Forestry Division, 1886, p. 184), of which they assume 27 per cent to represent wood over three inches in diameter; even this larger figure would bring the product of sizable wood to less than 15 cubic feet per year. And I repeat what is well known, that in the United States we hardly use the smaller sizes even for firewood.

“ To come now to more familiar measurements, we can figure out the possibilities or probabilities in the following manner, leaning toward extravagance rather than conservatism :—

“ Any lumberman acquainted with the various forest regions of the United States will admit that, leaving out the exceptional conditions on the Pacific coast, a cut of 20,000 feet b.m. per acre from our virgin forests would be an absurdly larger average estimate; this would represent, with excellent practice in the preparation of the material, say 2,000 cubic feet of round forest grown timber, and since the trees cut to yield such material are at least 150 years old—they are in reality mostly over 200 years—the annual production would appear under such conditions as 14 cubic feet per acre per annum, or about as much as the most advantageous results afforded from well-managed German forests.”

Forest wealth of Canada.

IMPROVED and Forest Land in the United States.

	AREA.		PER CENT.				
	Total land surface.	Improved land in farms.	Im- proved land.	Brush, forest, and waste land.	Prob- ably forest.	Brush land.	Open country.
	Acres.	Acres.					
United States.....	1,900,800,000	357,616,000	18	82	26		
Maine.....	19,132,000	3,044,000	15	85	64		
New Hampshire.....	5,783,000	1,727,000	29	71	62		
Vermont.....	5,846,000	2,655,000	45	55	42		
Massachusetts.....	5,155,000	1,657,000	32	68	29		
Rhode Island.....	694,000	274,000	39	60	40		
Connecticut.....	3,100,000	1,379,000	44	55	29		
New England States.....	39,710,000	10,736,000	27	73	52		
New York.....	30,376,000	16,389,000	54	46	30		
Pennsylvania.....	28,790,000	13,210,000	45	55	24		
New Jersey.....	4,671,000	1,999,000	42	58	41		
Delaware.....	1,254,000	762,000	60	40	24		
Maryland.....	6,310,000	3,412,000	54	46	32		
Middle Atlantic States.....	71,401,000	35,772,000	50	50	28		
Virginia.....	25,680,000	9,125,000	35	65	48		
North Carolina.....	31,089,000	7,828,000	25	75	54		
South Carolina.....	19,308,000	5,255,000	27	73	45		
Georgia.....	38,647,000	9,582,000	24	76	50		
Southern Atlantic States.....	114,724,000	31,790,000	27	73	49		
Atlantic coast.....	225,835,000	78,298,000	35	65	43		
Florida.....	34,713,000	1,145,000	3	97	58		
Alabama.....	32,986,000	7,698,000	23	77	53		
Mississippi.....	29,658,000	6,849,000	23	77	44		
Louisiana.....	29,069,000	3,775,000	13	87	45		
Gulf States.....	126,426,000	19,467,000	16	84	50		
Texas.....	167,808,000	20,746,000	12	88	23		
Michigan.....	36,755,000	9,865,000	26	74	50		
Wisconsin.....	34,848,000	9,793,000	28	72	47		
Minnesota.....	50,691,000	11,128,000	21	79	36		
Northern lumbering States.....	122,294,000	30,786,000	25	75	43		
Ohio.....	26,086,000	18,338,000	71	29	16		
Indiana.....	22,982,000	15,107,000	65	35	15		
Illinois.....	35,840,000	25,669,000	71	29	10		
Northern agricultural States.....	84,908,000	59,114,000	69	31	13		
Lake States.....	207,202,000	89,900,000	43	57	31		

IMPROVED and Forest Land in the United States—*Continued.*

	AREA.		PER CENT.				
	Total land surface.	Improved land in farms.	Im-proved land.	Brush, forest, and waste land.	Probably forest.	Brush land.	Open country.
	Acres.	Acres.					
West Virginia.....	15,772,000	4,554,000	28	72	52		
Kentucky.....	25,600,000	11,819,000	46	54	43		
Tennessee.....	26,720,000	9,362,000	35	65	55		
Arkansas.....	33,949,000	5,475,000	16	84	60		
Missouri.....	43,990,000	19,792,000	45	55	36		
Central States.....	146,031,000	51,002,000	35	65	48		
Iowa.....	35,504,000	25,429,000	71	29	13		
North Dakota.....	45,308,000	4,658,000	10	90	1		
South Dakota.....	49,696,000	6,959,000	14	86	2		
Nebraska.....	42,998,000	15,247,000	34	65	3		
Kansas.....	52,288,000	22,303,000	42	58	7		
Oklahoma.....	24,960,000	564,000	2	98			
Prairie States.....	250,754,000	75,160,000	30	70	4		
Interior States.....	396,785,000	126,162,000	32	68	20		
Montana.....	92,998,000	915,000	1	99	18	20	61
Wyoming.....	62,448,000	476,000	0·7	99	12	16	71
Colorado.....	66,332,000	1,823,000	2·7	97	16	21	60
New Mexico.....	78,374,000	263,000	0·3	99	6	21	72
Eastern Rocky Mountain region.....	300,154,000	3,477,000	1	99	13	20	66
Idaho.....	53,945,000	606,000	1	99	20	40	39
Nevada.....	70,233,000	723,000	1	99		9	90
Utah.....	52,601,000	548,000	1	99	16	27	56
Arizona.....	72,268,000	104,000	0·1	99·9	14	12	74
Western Rocky Mountain region.....	249,047,000	1,981,000	0·7	99·3	8	22	69
Rocky Mountain region.....	549,201,000	5,458,000	1	99	10	21	68
California.....	99,827,000	12,222,000	12	88	18	27	43
Oregon.....	60,518,000	3,516,000	6	94	34	28	32
Washington.....	42,703,000	1,820,000	4	96	55	21	20
Pacific coast.....	203,048,000	17,558,000	8	92	30	27	35

NOTE.—The authority for the area of improved farm land is furnished by the census of 1890. The areas of forest, brush, and waste lands were ascertained by subtracting the area of cultivated land from the total land areas of the several States, and are placed as per cent of the total areas in column 4. The part of these supposed to be forest is estimated on information obtained by various agencies. For the western section of the country the further subdivision into forest, brush, and open country is based partly on statistics gathered by Col. Ensign and published in bulletin 2 of this division, partly on the map prepared as stated before and here published, and partly on timber estimates of the Puget Sound *Lumberman*.

Forest wealth of Canada.

INADEQUACY OF FOREST SUPPLIES.

In regard to the consumption of forest supplies no full statistics are available, yet we have a better basis for estimates. In the report for the year 1892 it was stated that the total annual consumption cannot fall short of 22,000,000,000 cubic feet, or 350 cubic feet per capita, of all kinds of wood. This figure was arrived at by a series of careful estimates, the basis for which was stated. With additional information furnished by the Eleventh Census, it may be readily increased to 24,000,000,000 feet. The consumption of mill timber (sizable logs) was stated as about 4,000,000,000 cubic feet (now found to be an understatement by 15 per cent), representing about 30,000,000,000 feet, B. M., or between 20 and 25 per cent of the total consumption—a proportion which may be readily admitted to represent a rather extravagant average for the “millable” part of the forest growth, indicating that if we assume the annual growth of such timber per acre at 10 cubic feet, at least 400,000,000 acres of fully stocked forest are necessary to furnish this part of our consumption. Add the consumption of firewood, which is largely made of sizable timber, and it is safe to say that three times that area is necessary to furnish the amount of present consumption by its annual growth. From this statement alone, which is highly favourable to those who claim sufficient and “inexhaustible” supplies, the inadequacy of our forest area to meet growing demands will appear.

QUANTITY AND VALUE OF FOREST PRODUCTS.

The Eleventh Census statistics of lumber production, ably and conscientiously gathered by Mr. George A. Priest, agent of the census, have not yet been published. Like all statistics of this kind, the figures given must be incomplete, always remaining somewhat short of the truth and requiring estimated additions. Nevertheless, they furnish gratifying proof that the above estimates by the writer are within bounds.

By the courtesy of the Superintendent of the Census, the Hon. Carroll D. Wright, the writer is permitted to produce, in advance of the regular publication by the census, a summary statement, prepared in part by Mr. Priest and supplemented by canvass and estimates of this division, showing approximately the variety, quantity, and value of forest products used in the United States during the census year.

AMOUNT and value of forest products used during the census year 1890.

Classes of products.	Quantity.	Estimated cubic contents of forest-grown material. ^b	Value.	
		Cubic feet.		
I. Mill products: a				
Agricultural implement stock.....feet, B.M	30,000,000		\$532,000	
Bobbin and spool stock.....“	49,000,000		688,000	
Carriage and wagon stock.....“	66,000,000		1,306,000	
Furniture stock.....“	94,000,000		1,435,000	
All other sawed lumber.....“	27,630,000,000		310,818,000	
Total sawed lumber.....“	27,869,000,000	4,000,000,000	314,829,000	
Lath.....pieces.	2,365,000,000	}	3,709,924	
Pickets and palings.....“	110,000,000		750,000	
Shingles.....“	9,276,000,000		200,000,000	17,000,000
Staves.....“	1,178,000,000		300,000,000	7,762,000
Headings.....sets	183,000,000		175,000,000	4,934,000
Total lumber and cognate products, directly from logs.....		4,675,000,000	348,984,924	
II. Railroad construction:				
Ties.....pieces.	80,000,000	400,000,000		
Round and hewn timber used for bridges and trestles.....		80,000,000		
Telegraph poles.....		5,000,000		
Total.....		485,000,000	40,000,000	

AMOUNT and value of forest products used during the census year 1890—*Concluded.*

Classes of products.	Quantity.	Estimated cubic contents of forest-grown material. <i>b</i>	Value.
III. Exported timber not included in subdivision I <i>d</i>			
Hewn timber, 6,900,000 cubic feet.....		9,000,000	1,230,000
Logs and round timber.....		2,500,000	2,000,000
Rived staves, and stave bolts.....		500,000	1,500,000
		12,000,000	4,730,000
IV. Wood pulp : <i>b</i>			
300,000 tons ground paper pulp.....		75,000,000	3,550,000
80,000 tons soda pulp.....			
60,000 tons sulphite pulp fibre.....			
50,000 tons pulp for other purposes.....			
V. Miscellaneous mill products other than lumber manufactured directly from logs or bolts <i>e</i>.....			
		80,000,000	20,765,000
Total materials requiring bolt or log size.....		5,327,000,000	418,029,924
This last figure of "miscellaneous products" is a very considerable underestimate, based upon census returns and we are entirely safe in rounding off the total of sizable timber used and its value to.....			
		5,500,000,000	450,000,000
VI. Fuel <i>f</i> in the shape of wood.....			
In the shape of charcoal.....		18,000,000,000	450,000,000
VII. Wood used for dyeing extracts and charcoal for gunpowder <i>e</i>.....		250,000,000	7,000,000
		16,200,000	437,000
Total amount and value of wood consumption.....		23,766,000,000	907,437,000
VIII. Naval stores <i>e</i>—			
Turpentine..... barrels	346,544	\$5,459,115	
Rosin..... "	1,429,154	2,413,757	\$7,872,872
IX. <i>e</i> Wood alcohol..... gallons.			
Acetic acid in acetate of lime.....	2,000,000	1,750,000	
X. Tanning materials <i>e</i>—			
Hemlock bark..... cords.	1,056,000	6,925,000	
Oak bark..... "	322,150	2,783,500	
Hemlock bark for extract..... "	64,200	307,500	
Sumac leaves for tanning..... tons	3,300	198,800	
Sumac leaves for extract..... "	3,750	112,000	
Various not accounted for.....		74,000	
			10,400,000
XI. Maple sugar..... pounds <i>e</i>			
Maple syrup..... gallons <i>e</i>	32,952,927	3,300,000	
	2,258,376	2,200,000	5,500,000
Total value of forest by-products.....			25,882,872
Total value of all forest products.....			933,319,872
Add 10 per cent for omissions and underestimates <i>b</i>			93,331,987
Total value of wood and forest products at original place of production, estimated to have been used during census year, 1890.....			1,026,650,859

a These data have been compiled by Mr. Priest from the reports of 21,011 establishments (representing probably 70 per cent in number and 95 per cent in value of product), of which 18,064 manufactured sawed lumber as principal product, 702 manufactured shingles exclusively, 438 manufactured staves and headings exclusively, and 1,807 used logs or bolts in the manufacture of the various classes of products stated under the head of "Miscellaneous," and corrected by the inclusion of the quantities used for customs sawing not given in the census figures.

b Estimated by the Division of Forestry.

c Canvass of Division of Forestry.

d From returns of Bureau of Statistics, U. S. Treasury Department.

e Based on figures of the 11th Census.

f Based on figures of the 10th Census and canvass of Division of Forestry.

Forest wealth of Canada.

The following interesting separation of mill products according to regions and kinds is given by Mr. Priest, the quantities being based on various returns, and hence somewhat at variance :

LUMBER, of different kinds, sawed during census year 1890.

Kind.	Feet, board measure.
White pine.....	11,300,000,000
Spruce and fir.....	4,483,000,000
Hemlock.....	3,390,000,000
Hard pine, cypress, etc.....	5,516,000,000
Redwood.....	317,000,000
Hardwood, and all others.....	5,517,000,000
	30,593,000,000

AMOUNTS and value of lumber sawed, in different sections of the United States, during census year 1890.

*Region.	Amount (M. feet).	Value.
Eastern group.....	4,808,761	\$51,939,519
Central group.....	3,129,988	44,407,296
Lake group.....	8,250,702	98,110,488
Southern group.....	4,926,331	46,790,542
Pacific group.....	2,027,848	22,466,088
Miscellaneous.....	866,796	11,306,807
Total.....	24,010,446	272,020,740

*Eastern group comprises the New England and North Atlantic States; Central group, Ohio, Indiana, Illinois, West Virginia, Kentucky, Tennessee, Missouri; Lake group, Michigan, Wisconsin, Minnesota; Southern group, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Texas; Pacific group, California, Oregon, Washington; miscellaneous, all other States and Territories.

IMPORTS of Wood and Wood Products for home consumption by United States.

—	1891-92.	1892-93.
	\$	\$
Free of duty.....	7,442,640	8,865,408
Dutiable.....	14,364,100	17,163,589
Totals.....	21,806,740	26,028,997

Exports of wood and wood products from the United States for 1891-92 was \$42,729,407, and for 1892-93, \$43,097,786.

EXPORTS of Wood and Wood Products in 1892-93 by Districts.

	*DISTRICTS.				Totals.
	I.	II.	III.	IV.	
	\$	\$	\$	\$	
Raw material.....	9,633,527	10,234,058	6,631,539	1,640,202	28,139,326
Manufactures.....	13,085,593	221,940	558,392	390,020	14,255,945
Totals.....	22,719,120	10,455,998	7,189,931	2,030,222	42,395,271

* District No. I. includes all of the United States north of Baltimore and east of the Rocky Mountains. District No. II. includes the territory having its outlet by the S. Atlantic ports. District No. III. includes the territory adjacent to the Gulf ports. District No. IV. embraces that portion of the United States on the Pacific coast.

ADVANCE OF FORESTRY INTERESTS DURING THE YEAR.

The year has been fruitful of signs which point to promising results in the near future of the efforts to establish a rational forest policy in this country. The policy of establishing forest reservations on the public domain has been further extended by the President's proclamation of the Sierra Nevada and Ashland Reserves, aggregating 4,511,360 acres. This makes the total acreage of forest reservations established under that title 17,564,800 acres.

LIST of national forest reservations and national parks of the United States.

No.		Established.	Area.
			Acres.
1	Yellowstone National Park timberland reserve (Wyo.).....	Sept. 10, 1891	1,239,040
2	White River Plateau timberland reserve (Colo.).....	Oct. 16, 1891	1,198,080
3	Pecos River forest reserve (N. Mex.).....	Jan. 11, 1892	311,040
4	Sierra forest reserve (Cal.).....	Feb. 14, 1893	4,096,000
5	Pacific forest reserve (Wash.).....	Feb. 20, 1893	967,680
6	Pike's Peak timberland reserve (Colo.).....	Mar. 18, 1892	184,320
7	Bull Run timberland reserve (Oreg.).....	June 17, 1892	142,080
8	Plum Creek timberland reserve (Colo.).....	June 23, 1892	179,200
9	South Platte forest reserve (Colo.).....	Dec. 9, 1892	683,520
10	San Gabriel timberland reserve (Cal.).....	Dec. 29, 1892	555,520
11	Battlement Mesa forest reserve (Colo.).....	Dec. 24, 1892	858,240
12	Afognak Forest and Fish Culture reserve (Alaska).....	Dec. 24, 1892	Unknown.
13	Grand Canyon forest reserve (Ariz.).....	Feb. 20, 1893	1,851,520
14	Trabuco Canyon forest reserve (Cal.).....	Feb. 25, 1893	49,920
15	San Bernardino forest reserve (Cal.).....	Feb. 25, 1893	737,280
16	Ashland forest reserve (Oreg.).....	Sept. 28, 1893	18,560
17	Cascade Range forest reserve (Oreg.).....	Sept. 28, 1893	4,492,800
	Total acreage of forest reserves.....		17,564,800

NATIONAL PARKS.

18	Yellowstone National Park.....	Mar. 1, 1872	2,142,720
19	Yosemite National Park.....	Oct. 1, 1890	967,680
20	Sequoia National Park.....	Oct. 1, 1890	161,280
21	General Grant National Park.....	Oct. 1, 1890	2,560

Forest wealth of Canada.

The present great need of providing protection and suitable administration for these reservations is to be met by the enactment of a law (H. R. 119) which, while less comprehensive than that contemplated in the fifty-second Congress (S. 3235), contains the essential features for a first step towards a more thorough organization, and recommends itself on account of its simplicity. Having been reported favourably by the Committee on Public Lands and placed on the calendar, its early passage, which is so necessary to a clinching of the policy expressed in the proclamation, is hoped for. This bill provides in the first place the use of the army for protection of the reservations. Experience in Yellowstone Park and elsewhere points out the efficiency of such a service, which is also satisfactory to the officers and troops, as it breaks the monotony of camp life, furnishes useful occupation, and keeps the troops in practice for field work.

The next important provision lies in the authority given to the Secretary of the Interior to regulate the use and occupancy of the reservations, thus settling their legal status. The sale of ripe timber from reservations and other public timber lands under such supervision as to insure the inviolability of the forest cover is also permitted, in the discretion of the Secretary. This provision, which has been severely criticised, is most important and essential to any kind of successful forest policy. Its absence from the statutes hitherto has been the fruitful source of depredations and forest destruction, for the resident population must be provided with wood material, and, in the absence of legal methods and fair means to do so, it is driven to supply its necessities by unfair means. As soon as a value is placed on the timber of the public domain it will be possible not only to dispose of it advantageously, but also to control the manner of its use without injury to the forest conditions and the future, and an interest in the same will grow up. In this or a similar provision, which attempts a rational use of the forest resources, lies the only salvation of our western forests and of the soil and water conditions dependent on the same.

The funds derived from the sale of ripe timber and other income are to be set aside for the purpose of establishing gradually a more amplified and effective system of forest management, so that the forest itself shall pay for its own protection.

State Governments are also becoming more active in regard to their forestry interests. New Hampshire acted in part upon the recommendations of its investigating forestry commission, by making the same permanent (with a new personnel), constituting the selectmen of the several towns firewardens with power, or allowing the commissioners to appoint special firewardens, the expense to be charged to town or county.

New York has passed new legislation having in view the final establishment of a compact State forest and also introducing some methods designed for the utilization of the spruce in the present State forest reserve. This last provision is faulty in that it is based on the misconception that the restriction of cutting to certain sizes is sufficient to preserve acceptable forest conditions.

Pennsylvania has passed a law establishing a well-considered plan of examining into the condition of its forest cover, especially at head-waters of rivers, with a view of formulating further action. The Pennsylvania Forest Association, which represents by all odds the most active, business-like and intelligent element in the forestry movement, has made this action possible; the association is thriving, increasing its membership constantly, and with the publication of its now nearly regularly issued *Forest Leaves* is the most powerful ally of the national association.

New Jersey is promising to enter the ranks of those States which recognize the importance of their forest areas, the first step being an examination by a committee of the State board of health into the needs of forest preservation on the highlands, the director of the Geological Survey having furnished the basis and first suggestion for such action.

Maine having inaugurated a tolerably satisfactory fire law, the north-eastern Atlantic States seem to be in a fair way of establishing a forest policy.

In the West we have to note rather a retrograde movement. California found it necessary to abolish for political reasons its forestry commission, inaugurated eight

years ago with so much promise, warranted by the eager and intelligent work of the first commission. Colorado also has practically abandoned its first attempts at a forest policy by leaving the competent and useful forest commissioner without salary and means to proceed in his work.

Wisconsin has entered the ranks of forestry States by the inauguration of a forestry association starting upon a practical basis, which has in view the active co-operation of lumbermen.

APPENDIX "S."

FRENCH TREATY AS AFFECTING FOREST PRODUCTS.

The Commercial Treaty affecting the relations between Canada and France in respect of their customs tariffs has now been finally ratified.

The following forest products (among other articles) imported direct from Canada shall receive the advantage of the minimum tariff on entering France, Algeria or the French Colonies :—

Building timber in rough or sawn.

Wood pavement.

Staves.

Wood pulp (cellulose).

Tanning extracts.

Furniture of common wood.

Furniture, other than chairs, or solid wood, common.

Flooring in pine or soft wood.

Wooden sea-going ships.

Forest wealth of Canada.

STATISTICAL TABLES

Forest wealth of Canada.

TABLE 1 (a.)

FOREST PRODUCTS OF 1890-91.—(From Census Returns 1891.)

Timber.	Ontario.	Quebec.	New Brunsw- wick.	Nova Scotia.	P. E. Island.	Mani- toba.	British Col- umbia.	Terri- tories.	Total Canada.
White pine, square cubic feet.....	6,884,808	1,665,231	414,727	202,938	1,550	550	19,000	2,440	9,191,244
Red pine, sq. c. ft.	595,879	317,609	2,805	148,055	2,651	100	336,890	2,410	1,406,399
Oak, sq. "	1,765,544	68,863	1,412	26,226	400	32,035	600	.....	1,895,080
Tamarack, sq. or sided	562,728	2,595,980	266,320	19,600	1,400	189,508	16,333	13,265	3,665,134
Birch and ma- ple, sided.... "	1,133,790	959,304	636,161	670,478	237,713	295	.....	4,728	3,642,073
Elm " " " "	2,686,725	166,781	430	1,040	1,880	6,334	.....	1,232	2,864,422
Black walnut, sided	38,042	7,696	.....	.....	.....	.....	.....	.....	45,738
Other walnut, sided	30,736	71,477	5,040	1,674	.....	.....	.....	.....	108,927
Hickory, sided "	316,977	49,786	.....	9,192	3,500	700	6,300	.....	386,455
All other " "	4,811,878	11,437,966	883,679	2,206,675	338,503	323,110	740,905	763,488	21,506,204
Pine logs, } Census Spruce } Stand- and } ard, other } 100 ft. logs ... } B. M.	10,293,171	2,560,298	532,017	402,021	20,144	613	1,194,156	88,138	15,090,523
Spars and maets No.	40,685	50,498	187,965	22,836	2,318	200	18,638	.....	323,140
Staves M	29,550	44,628	8,026	9,103	783	2	163	.....	92,260
Lathwood... cords.	97,684	172,594	11,471	9,598	1,011	1,116	313	25	293,412
Tanbark "	110,124	148,851	56,268	12,574	610	1,040	320	23	329,810
Firewood ... "	5,192,399	3,380,389	616,049	703,809	160,532	274,992	157,006	69,988	10,556,164
Fence posts... No.	6,528,980	10,670,437	1,494,484	2,541,881	2,120,486	1,508,353	2,284,660	1,213,974	28,363,255
Railway ties... "	4,813,666	2,404,593	1,483,334	317,222	42,130	473,672	940,690	209,600	10,684,907
Telegr'ph posts "	220,818	97,265	12,634	40,777	10	305	22,002	50	393,861
Pulp wood... cords.	114,959	131,191	11,372	3,334	24	.....	267	.....	261,155
Shingles... .. M	610,374	175,625	34,359	88,267	19,169	545	10,386	1,008	939,796

FOREST PRODUCTS OF 1880-81.—(From Census Returns 1881.)

White pine, square cubic feet.....	12,262,570	4,840,462	130,762	124,451	1,524	2,168	1,945,708	18,610	19,326,255
Red pine, sq. c. ft.	1,848,927	654,721	31,954	35,726	342	.....	19,382	11,500	2,602,552
Oak, sq. "	5,448,263	59,587	3,316	22,876	180	138,672	.....	.....	5,672,894
Tamarack, sq. or sided	1,515,360	2,707,745	256,389	106,069	11,270	32,792	.....	23,950	4,653,575
Birch and ma- ple, sided.... "	612,760	2,784,395	348,441	549,330	93,742	.....	26,000	127	4,414,795
Elm " " " "	2,925,382	163,049	2,400	1,393	290	99,454	.....	.....	3,191,968
Black walnut, sided	59,032	.....	.....	.....	.....	.....	.....	.....	59,032
Other walnut, sided	682,399	66,806	.....	13	5,001	.....	.....	.....	754,219
Hickory, sided "	377,811	7,998	.....	630	.....	300	.....	880	387,619
All other " "	26,200,058	14,382,814	2,371,061	4,091,517	797,851	622,059	436,792	54,806	48,956,958
Pine logs, } Census Spruce } Stand- and } ard, other } 100 ft. logs ... } B. M.	14,945,670	5,400,273	657,400	497,785	5,260	14,742	798,119	5,158	22,324,407
Spars and maets No.	23,721	104,248	54,406	8,703	196	.....	900	67	192,241
Staves M	22,857	3,585	955	13,147	1,177	10	148	2	41,881
Lathwood... cords.	50,265	31,881	3,434	5,585	814	279	6,053	.....	98,311
Tanbark "	45,921	285,940	55,535	10,843	629	.....	1,550	.....	400,418
Firewood ... "	5,435,414	3,638,928	781,729	637,084	159,619	219,784	92,277	38,990	10,993,234

Fence posts, railway ties, telegraph posts, pulp wood and shingles were not recorded in 1881, these additional columns having been added in the census of 1891, for the first time.

TABLE

COMPARATIVE STATEMENT of Forest Products in

Year.	Square Pine.		Square Oak.	Square or sided Tamarac.	Square or sided Birch and Maple.	Square Elm.	Walnut.		Cubic feet of Hickory.	All other square or sided timber.	
	White.*	Red.*	*	*	*	*	Black.*	*Other species.	*	*	
NEW BRUNSWICK											
1	1891	414,727	2,805	1,412	266,320	636,161	430	.....	5,040	.....	883,679
2	1881	130,762	31,954	3,316	256,389	348,441	2,400	.....	.....	.....	2,371,061
3	1871	330,920	60,139	7,360	360,825	827,345	1,250	.....	120	.....	2,192,608
NOVA SCOTIA											
4	1891	202,938	148,055	26,226	19,600	670,478	1,040	.....	1,674	9,192	2,206,675
5	1881	124,451	35,726	22,876	106,069	549,330	1,393	.....	13	630	4,091,517
6	1871	238,638	22,020	96,494	116,816	518,727	200	.....	2,265	240	3,088,003
ONTARIO											
7	1891	6,884,808	595,879	1,765,544	562,728	1,133,790	2,686,725	38,042	30,736	316,977	4,811,878
8	1881	12,262,570	1,848,927	5,448,263	1,515,360	612,760	2,925,382	59,032	682,399	377,811	26,200,058
9	1871	14,791,203	1,524,698	3,144,554	1,223,444	92,290	1,777,905	117,589	72,214	157,975	10,594,943
QUEBEC											
10	1891	1,665,231	317,609	68,863	2,595,980	959,304	166,781	7,696	71,477	49,786	11,437,966
11	1881	4,840,462	654,721	59,587	2,707,745	2,784,395	163,049	.....	66,806	7,998	14,382,814
12	1871	8,876,060	347,515	53,635	3,994,878	500,995	53,299	.....	28,382	39,612	10,414,710
TOTAL, FOUR PROVINCES											
13	1891	9,167,704	1,064,348	1,862,045	3,444,628	2,265,943	2,854,976	45,738	108,927	375,955	18,940,198
14	1881	17,358,245	2,571,328	5,534,042	4,585,563	4,294,926	3,092,224	59,032	749,218	386,439	47,045,450
15	1871	24,236,821	1,954,372	3,302,043	5,695,963	1,939,357	1,832,654	117,589	102,981	197,827	26,290,264
TOTAL, OTHER PROVINCES											
16	1891	23,540	342,051	33,035	220,506	242,340	9,446	.....	.....	10,500	2,166,006
17	1881	1,968,010	31,224	138,852	68,012	119,869	99,744	.....	5,001	1,180	1,911,508
BRITISH COLUMBIA											
18	1891	1,900	336,890	600	16,333	.....	.....	.....	.....	6,300	740,905
19	1881	1,945,708	19,382	.....	.....	26,000	.....	.....	.....	.....	436,792

* 50 cubic feet to 1 ton.

Forest wealth of Canada.

1 (b).

Four Provinces.—(Converted into tons from Census Returns, 1891, '81 and '71.)

Pine Logs.	Spruce and other logs.	Spars and Masts.	Staves.	Lathwood.	Tanbark.	Firewood.	Fence Posts.	Railway Ties.	Telegraph Posts.	Pulp Wood.	Shingles.
†	†			++	+	§			**		

WICK.

532,017	4,619,901	187,965	8,026	11,471	56,268	616,049	4,483,452	4,450,002	126,340	11,372	34,359	1
657,400	5,001,069	54,406	955	3,434	55,535	781,729	.....	.....	.....	.....	.....	2
1,214,485	3,533,152	11,356	747	2,490	28,228	545,679	.....	.....	.....	.....	.....	3

SCOTIA.

402,021	4,793,477	22,836	9,103	9,598	12,574	703,809	7,625,643	951,666	407,770	3,334	88,267	4
497,785	2,250,593	8,703	13,147	5,585	10,843	637,084	.....	.....	.....	.....	.....	5
477,187	897,595	10,631	11,811	924	12,388	526,472	.....	.....	.....	.....	.....	6

RIO.

10,293,171	11,660,690	40,685	29,550	97,684	110,124	5,192,399	19,586,940	14,410,998	2,208,180	114,959	610,374	7
14,945,670	7,621,610	23,721	22,857	50,265	45,921	5,435,414	.....	.....	.....	.....	.....	8
5,713,204	1,255,090	4,876	20,964	15,095	30,854	4,519,320	.....	.....	.....	.....	.....	9

BEC.

2,560,298	10,757,148	50,498	44,628	172,594	148,851	3,380,389	32,011,311	7,213,779	972,650	131,199	175,625	10
5,400,273	8,182,434	104,248	3,585	31,881	285,940	3,638,928	.....	.....	.....	.....	.....	11
5,011,532	3,628,720	94,822	1,184	7,148	91,051	3,121,612	.....	.....	.....	.....	.....	12

PROVINCES.

13,787,507	31,831,216	301,984	91,307	291,347	327,817	9,892,646	63,707,346	27,026,445	3,714,940	260,864	908,625	13
21,501,128	23,055,706	191,078	40,544	91,165	398,239	10,483,155	.....	.....	.....	.....	.....	14
12,416,468	9,314,557	121,085	34,706	25,657	162,521	8,713,083	.....	.....	.....	.....	.....	15

PROVINCES.

1,203,021	1,707,341	21,156	953	2,065	1,993	662,518	21,382,419	4,998,276	223,670	291	31,311	16
823,279	2,969,878	1,163	2,144	7,146	2,179	500,079	.....	.....	.....	.....	.....	17

CONTRIBUTION.

1,194,156	908,053	18,638	163	313	320	157,006	6,853,980	2,822,070	220,020	267	10,386	18
798,119	2,483,024	900	148	6,063	1,550	82,277	.....	.....	.....	.....	.....	19

† 40 cubic feet to 1 ton. ‡ 128 cubic feet to ton. § 100 cubic feet to ton. || 3 c. feet to piece. ** 10 c. ft. to piece.

TABLE

SUMMARY of Sawmills in Canada.—

SAWMILLS. — 1891.	Establishments.	FIXED CAPITAL			Working Capital.
		In Land.	In Buildings.	In Machinery and Tools.	
1 British Columbia.....	67	891,435	437,311	944,631	2,399,142
2 Manitoba.....	31	17,308	57,025	104,950	312,025
3 New Brunswick.....	496	437,873	738,420	1,120,070	2,329,545
4 Nova Scotia.....	1,172	499,542	351,677	786,738	869,597
5 Ontario.....	1,895	2,355,168	2,615,883	5,403,534	15,375,446
6 Prince Edward Island.....	172	30,438	41,390	97,462	42,663
7 Quebec.....	1,815	1,856,663	1,628,986	2,493,640	5,433,79
8 Territories.....	18	16,575	39,425	87,120	388,150
Total.....	5,666	6,105,002	5,910,117	11,038,145	27,149,847
1881.					
1 British Columbia.....	27				1,343,600
2 Manitoba.....	37				609,350
3 New Brunswick.....	478				2,987,860
4 Nova Scotia.....	1,190				1,640,487
5 Ontario.....	1,761				11,004,042
6 Prince Edward Island.....	165				199,919
7 Quebec.....	1,729				7,637,975
8 Territories.....	3				64,000
Total.....	5,390				*25,487,233

* Total capital.

TABLE

SUMMARY of Shingle Mills in Canada.—

SHINGLE MILLS.					
1 British Columbia.....	9	2,300	6,200	20,800	7,500
2 Manitoba.....	1			2,200	2,200
3 New Brunswick.....	126	15,820	36,305	112,159	109,710
4 Nova Scotia.....	213	12,280	22,455	52,301	15,515
5 Ontario.....	295	96,188	90,225	295,027	286,812
6 Prince Edward Island.....	32	2,575	6,361	11,469	1,955
7 Quebec.....	201	11,364	25,623	101,247	182,767
8 Territories.....					
Total.....	877	140,527	187,169	595,203	606,459

Forest wealth of Canada.

1 (c.)

(From Census Returns, 1891 and 1881.)

AVERAGE No. OF EMPLOYED.				Aggregate amount of yearly wages in \$.	MONTHS IN OPERATION.			POWER USED IN MANUFACTURE.				Materials used, cost at the factory using them, including freight charges.	PRO-DUCTS. VALUE.	
MALES.		FE-MALES.			Full time.	Half time.	Quarter time.	STEAM.		WATER.	All others, electric, gas, &c., h.p.			
Over 16 yrs.	Under 16 yrs.	Over 16 yrs.	Under 16 yrs.					En-gines.	Horse power.					Horse power.
1,542	12	2	.....	697,868	43	13	11	86	6,865	743	10	1,060,176	2,212,910	1
517	10	.....	.....	156,681	19	7	5	30	999	40	.....	240,356	511,976	2
6,266	560	4	1	1,448,837	254	118	123	178	11,232	9,694	163	3,785,836	6,673,701	3
4,512	235	8	.....	921,028	476	358	338	213	7,003	18,640	1	1,944,630	4,083,980	4
22,484	1,342	24	1	6,577,006	1,039	477	380	1,387	52,434	26,701	82	14,554,541	26,987,259	5
317	28	3	.....	68,996	96	35	40	30	689	2,392	2	157,163	324,743	6
12,169	1,044	20	8	2,662,319	716	431	773	456	22,054	45,591	422	4,959,148	10,082,891	7
267	2	.....	.....	93,160	8	5	5	16	603	60	60	186,160	384,975	8
48,074	3,233	61	10	12,625,895	2,651	1,444	1,675	2,396	101,879	103,861	740	26,888,010	51,262,435	
393	5	.....	.....	202,420	.....	.....	.....	.....	.....	.....	.....	223,961	550,321	1
563	13	6	.....	206,190	.....	.....	.....	.....	.....	.....	.....	513,158	885,173	2
6,440	707	20	8	1,243,628	.....	.....	.....	.....	.....	.....	.....	4,358,735	6,532,825	3
3,970	156	34	.....	549,480	.....	.....	.....	.....	.....	.....	.....	1,446,858	3,094,137	4
15,765	1,004	69	8	3,581,225	.....	.....	.....	.....	.....	.....	.....	8,985,797	16,601,175	5
365	16	17	1	58,262	.....	.....	.....	.....	.....	.....	.....	127,194	240,153	6
11,575	841	37	8	2,237,191	.....	.....	.....	.....	.....	.....	.....	5,101,884	10,542,649	7
44	.....	.....	.....	16,600	.....	.....	.....	.....	.....	.....	.....	43,802	95,318	8
39,135	2,742	183	25	8,146,996	.....	.....	.....	.....	.....	.....	.....	20,798,389	38,541,752	

1 (d.)

(From Census Returns, 1891.)

96	2	.....	.....	22,464	5	3	1	6	178	40	.....	39,810	100,688	1
4	.....	.....	.....	240	.....	1	.....	1	16	.....	.....	150	500	2
737	17	3	.....	172,742	23	15	88	27	1,339	565	.....	173,479	438,744	3
396	36	.....	.....	51,343	62	78	73	9	197	2,613	15	51,967	149,077	4
1,321	169	1	1	282,385	119	80	94	192	4,569	1,706	50	495,377	1,126,849	5
42	11	.....	.....	6,519	6	9	17	3	75	375	.....	9,748	22,531	6
454	76	2	.....	80,663	60	65	94	45	1,252	1,997	.....	90,277	246,536	7
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
3,050	311	6	1	616,356	275	251	367	283	7,626	7,296	65	860,808	2,063,924	

TABLE 1 (e.)

CENSUS OF 1891.

Woodworking Industries.

Names of Industries.	Invested Capital.	Wages.	Value of Product.
	\$	\$	\$
Ashery, pot and pearl.....	113,019	45,139	153,441
Basket making.....	80,540	66,987	151,003
Boat building.....	421,395	179,092	477,522
Cabinet and furniture.....	6,094,435	2,432,771	7,706,093
Carpenters and joiners.....	5,012,670	2,949,803	9,111,299
Carriage factories.....	8,029,621	2,999,572	9,744,416
Carving and gilding.....	72,174	42,845	136,430
Charcoal burning.....	56,831	22,696	91,874
Cheese box factories.....	106,380	44,876	137,616
Cigar box factories.....	19,500	6,000	15,000
Coffin and casket making.....	502,346	166,039	498,440
Cooperages.....	1,896,931	744,534	2,382,072
Hub and spoke factories.....	106,895	30,010	105,400
Invalid and baby carriages.....	51,300	43,400	145,500
Last and peg factories.....	67,000	28,630	72,500
Lath mills.....	25,365	11,180	37,860
Mast and spar making.....	58,065	15,620	59,800
Match factories.....	336,650	143,064	434,953
Packing cases.....	137,305	68,900	293,869
Pail and tub factories.....	192,130	36,280	99,962
Patterns and moulds.....	3,700	4,250	10,100
Piano action factory.....	11,000	10,800	29,500
Picture frame making.....	289,962	122,014	564,579
Planing mills.....	2,955,680	970,112	5,211,592
Pulp mills.....	2,900,907	292,099	1,057,810
Pump and wind mills.....	519,890	163,325	601,513
Refrigerator factories.....	22,775	22,840	56,350
Sash, door and blind factories.....	7,108,076	2,309,267	9,891,510
Saw mills.....	50,203,111	12,625,895	51,262,435
Shingle mills.....	1,529,358	616,356	2,093,924
Ship building.....	2,045,456	998,615	3,101,275
Show case making.....	233,425	84,250	441,750
Shook factories.....	73,677	28,127	99,714
Spinning wheel making.....	12,915	5,050	8,788
Spool factories.....	63,400	25,000	50,000
Stave mills.....	724,242	296,008	814,339
Street car works.....	13,858	2,400	13,600
Tanneries.....	6,322,963	1,522,007	*11,422,860
Trunk and box factories.....	659,805	253,863	1,042,733
Washing machines and wringers.....	93,260	46,300	164,998
Wood turning.....	469,510	204,265	621,096
Total.....	99,637,522	30,680,281	120,415,516

*The product in this instance is leather. In all the other cases the product remains wood.

Forest wealth of Canada.

TABLE I (f.)

PRODUCTS OF THE FOREST (4 PROVINCES).—From Census Returns 1891-'81-'71.

Article.	1891.		1881.		1871.		1891. 1881. 1871.		
	Qnty.	Value.	Qnty.	Value.	Qnty.	Value.	Value per Customs returns.		
		\$		\$		\$	\$	\$	\$
Square Timber—									
White pine... tons	183,354	2,420,298	347,165	3,558,442	484,738	3,635,535	14 40	10 25	7 50
Red do .. "	21,287	209,038	51,428	421,710	39,090	287,702	9 82	8 20	7 36
Oak	37,241	782,061	110,700	1,911,789	66,041	775,972	21 00	17 27	11 75
Tamarack .. "	68,900	482,300	91,712	550,274	113,919	404,412	7 00	6 00	3 55
Birch and maple	45,319	376,941	86,000	574,270	38,800	257,247	* See foot note.		
Elm	57,100	762,285	61,845	749,561	36,653	344,538	13 35	12 12	9 40
All other sq. timber	389,416	6,674,590	965,000	11,753,700	536,173	5,576,200	17 14	12 18	10 40
Logs, pine... No.	13,787,507	11,581,506	21,501,128	17,845,936	12,416,468	8,877,774	84c p. log	83c p. log	71½c p. log
do all other. "	31,831,216	19,098,729	23,055,706	11,527,853	9,314,557	3,723,823	60c do	50c do	40c do
Spars & masts. pcs.	301,984	256,686	191,078	171,971	121,085	227,640	85c	90c	1 88
Staves	91,307	418,724	40,544	290,253	34,707	321,650	† See foot note.		
Lathwood .. cords.	291,347	1,456,735	91,165	455,825	25,657	128,285	5 00	5 00	5 00
Tanbark	327,817	1,475,176	398,239	1,792,576	162,521	731,346	4 50	4 50	4 50
Firewood	9,892,646	21,269,189	10,493,155	21,825,762	8,713,083	19,168,733	2 15	2 08	2 20
Fence posts .. cu.ft.	63,707,346	2,123,578					10c		
Rwy. ties	27,026,445	1,903,763					20c		
Telegraph poles	3,714,940	315,770					85c		
Pulp wood .. cords.	260,864	782,592					3 00		
Shingles	908,625	1,908,112					2 10		

PRODUCTS OF THE FOREST OF THE DOMINION.—(From Census Returns 1891-'81-'71.)

Square Timber—									
White pine... tons	184,000	2,649,600	386,525	3,961,881			14 40	10 25	
Red do .. "	28,130	276,237	52,050	426,810			9 82	8 20	
Oak	38,000	798,000	113,458	1,954,420			21 00	17 27	
Tamarack .. "	73,300	513,100	93,070	558,420			7 00	6 00	
Birch and maple	50,166	417,255	88,300	604,769			* See foot note.		
Elm	59,300	791,655	63,840	773,749			13 35	12 12	
All other sq. timber	433,000	7,421,620	1,003,156	12,218,440			17 14	12 18	
Logs, pine... No.	14,990,528	12,741,950	22,324,407	18,529,258			84c p. log	83c p. log	
do spruce & all other. "	33,538,557	20,123,134	26,025,584	13,012,792			60c do	50c do	
Spars & masts. pcs.	323,140	274,669	192,241	173,017			85c p. pc.	90c p. pc.	
Staves	92,260	434,868	41,881	300,128			† See foot note.		
Lathwood .. cords.	293,412	1,467,060	98,311	491,558			5 00	5 00	
Tanbark	329,810	1,494,145	400,418	1,801,881			4 50	4 50	
Firewood	10,555,164	22,693,602	10,993,234	22,865,926			2 15	2 08	
Fence posts .. cu.ft.	85,089,765	2,836,325					10c		
Rwy. ties	32,054,721	2,136,982					20c		
Telegraph poles	3,938,610	333,882					85c		
Pulp wood .. cords.	261,155	783,465					3 00		
Shingles	939,736	1,973,866					2 10		

Quantities, when in tons, taken at 50 cubic feet = 1 ton of square timber; 40 cubic feet, 1 ton of logs. Census log, (as above): 100 ft. board measure = 8·3 cubic feet. Standard log, in common use = 200 ft.

* For 1891, $\frac{1}{10}$ th maple at \$14.07, remainder birch at \$8.17; for 1881, $\frac{1}{10}$ th maple at \$13.10, remainder birch at \$6.77; for 1871, $\frac{1}{10}$ th maple at \$5.75, remainder birch at \$7.07. Estimate taken from Trade and Navigation Returns.

† For 1891, 280 M. at \$42, 91,980 M. at \$4.60; for 1881, 1,000 M. at \$42, 40,881 M. at \$7.34 per M.

TABLE 1 (f).

PRODUCTS OF THE FORESTS OF CANADA, 1891. (From Census Returns, 1891.)

Article.	Quantity.	Value.	Value per Customs Returns and Remarks.
		\$	
Square timber—			
White pine..... tons.	184,000	2,649,600	\$14.40 per ton.
Red do..... "	28,131	276,237	\$9.82 do
Oak..... "	38,000	798,000	\$21.00.
Tamarack..... "	73,300	513,100	\$7.00.
Birch and maple..... "	50,166	417,255	$\frac{1}{3}$ th maple at \$14.07; rest birch at \$8.17.
Elm..... "	59,300	791,655	\$13.35 per ton.
All other square timber... "	433,000	7,421,620	\$17.14 do
Logs—			
Pine..... No.	14,990,528	12,741,950	84c. per log.
Spruce and all other.... "	33,538,557	20,123,134	60c. do
Masts and spars..... pcs.	323,140	274,669	85c. per piece.
Staves..... M.	92,260	434,868	* 280 M. at \$42; 91,990 M. at \$4.60.
Lathwood..... cords.	293,412	1,467,060	\$5.00 per cord.
Tanbark..... "	329,810	1,494,145	\$4.50 do
Fence poles..... No.	28,363,255	2,836,325	† 10c. each.
Railway ties..... "	10,684,907	2,136,982	† 20c. do
Telegraph poles..... "	393,861	333,882	85c. do
Firewood..... cords.	10,555,164	22,693,602	\$2.15 per cord.
Pulp wood..... "	261,155	783,465	\$3.00 do
Shingles..... M.	939,736	1,973,866	\$2.10 do

Quantities when in tons taken at 50 cubic feet for 1 ton of square timber; 40 cubic feet for 1 ton of logs. Census log: 100 feet board measure = 8.3 cubic feet; standard log, 200 feet board measure.

* Proportion estimated from T. and N. Report for 280 M. feet; for the remainder, price obtained from local sources.

† Value estimated.

PRODUCTS OF THE FORESTS OF CANADA, 1881. (From Census Returns, 1881.)

Square timber—			
White pine..... tons.	386,525	3,961,881	\$10.25 per ton.
Red do..... "	52,050	426,810	\$8.20 do
Oak..... "	113,458	1,954,420	\$17.27.
Tamarack..... "	93,070	558,420	\$6.00.
Birch and maple..... "	88,300	604,769	* $\frac{1}{3}$ th maple at \$13.10; $\frac{2}{3}$ th birch at \$6.77.
Elm..... "	63,840	773,740	\$12.12.
All other square timber. "	1,003,156	12,218,440	\$12.18.
Logs—			
Pine..... No.	22,324,407	18,529,268	83c. per log of 100 ft.
Spruce and all other.... "	21,025,584	13,012,792	50c. do do
Masts and spars..... pcs.	192,241	173,017	90c.
Staves..... M.	41,881	300,123	† 1,000 at \$42, 40,881 at \$7.34 per M.
Lathwood..... cords.	98,311	491,555	\$5.00 per cord.
Tanbark..... "	400,418	1,801,881	\$4.50 do
Fence poles..... No.			
Railway ties..... "			
Pulp wood..... cords.			
Shingles..... M.			
Firewood..... cords.	10,993,234	22,865,926	\$2.08.
Telegraph poles..... No.			

Quantities when given in tons taken at 50 cubic feet for 1 ton of square timber and 40 cubic feet for logs. Value taken from Trade Returns. Census log is 100 feet board measurement.

* Proportion estimated from T. and N. Returns.

† Proportion estimated from T. and N. Returns for 1,000 M.; for the remainder, price obtained from local sources.

Forest wealth of Canada.

TABLE 1 (*f.*)

COMPARATIVE VALUE OF Products of the Forest for the four Provinces, 1891-'81-'71.

(From Census and Trade and Navigation Returns.)

Articles.	1891.	1881.	1871.
	\$	\$	\$
White pine.....	2,420,298	3,558,442	3,635,535
Red do.....	209,038	421,710	287,702
Oak.....	782,061	1,911,789	775,972
Tamarack.....	482,300	550,274	404,412
Birch and maple.....	376,941	574,270	257,247
Elm.....	762,285	749,561	344,538
All other square timber.....	6,674,590	11,753,700	5,576,200
Logs—pine.....	11,581,506	17,845,936	8,877,774
All other.....	19,098,729	11,527,853	3,725,823
Spars and masts.....	256,686	171,971	227,640
Staves.....	418,724	290,253	321,650
Lathwood.....	1,456,735	455,825	128,285
Tanbark.....	1,475,176	1,792,576	731,346
Firewood.....	21,269,189	21,825,762	19,168,783
	67,264,258	73,429,922	44,462,907
Total of above articles for the Dominion.....	72,096,795	77,673,040	.....
Percentage of four Provinces.....	93.3	94.5	.....
Percentage of other Provinces.....	6.7	5.5	.....
Increase of four provinces in 1881 over 1871.....	.....	65 p.c.	.....
Decrease in 1891 compared with 1881.....	8.4	.....	.....
Dominion decrease, 1891 compared with 1881.....	7.18	.....	.....
Total for Dominion, with extra articles. See sheet A.	80,161,415	.....	.....

TABLE 2.—LUMBER, &c., CARRIED BY RAILWAYS.

(From Railway Statistics—Department Railways and Canals.)

Year.	Lumber of all kinds.		*Saw logs.	Firewood.
	Feet.	Tons.	Tons.	Tons.
1876.....	517,623,083	723,183	.....	113,435
1877.....	464,250,672	833,713	.....	145,165
1878.....	.....	.....	.....	.....
1879.....	393,117,149	986,169	.....	181,350
1880.....	.....	.....	.....	.....
1881.....	728,903,172	1,197,972	.....	265,896
1882.....	.....	.....	.....	.....
1883.....	889,934,325	1,183,354	.....	560,152
1884.....	.....	.....	.....	.....
1885.....	1,689,887,638	2,350,519	.....	490,297
1886.....	1,561,609,941	2,302,382	.....	498,285
1887.....	1,616,968,458	2,548,807	200,000	540,821
1888.....	1,618,006,137	2,361,351	297,500	652,636
1889.....	1,946,986,627	2,587,503	267,000	1,078,379
1890.....	2,303,168,858	3,178,960	211,500	806,614
1891.....	2,301,741,757	3,191,806	76,800	946,175
1892.....	2,424,050,459	3,338,854	154,570	895,522
1893.....	2,321,317,135	3,417,446	82,670	1,064,812

*Some other saw logs are included in the columns "Lumber of all kinds."

TABLE 2.—LUMBER AND OTHER FOREST PRODUCTS PASSED THROUGH CANALS—FROM REPORTS OF DEPARTMENTS OF INLAND REVENUE, AND RAILWAYS AND CANALS.

TRAFFIC ON CANALS, PRODUCTS OF THE FOREST BY ARTICLES. FISCAL YEARS 1876 TO 1893.

Years.	Bark.	Boat knees.	Floats.	Firewood.	Hoops and hop poles.	Lumber sawed.	Masts, spars, telegraph poles.	Railway ties.	Saw logs.	Staves, all kinds.	Shingles.	Split posts and rails.	Timber, square.	Timber, and other wood, free.	Traverses.	Totals.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1876.	150	177	14,407	361,874	2,525	484,023	16,318	8,757	31,818	13,523	777	217	102,896	..	18,661	1,056,133
1877.	340	..	21,345	337,658	2,331	648,007	16,115	7,692	45,852	15,846	811	179	128,137	..	23,195	1,267,508
1878.	307	116	19,330	299,350	3,006	502,466	5,352	3,657	23,098	9,453	655	154	114,070	..	16,335	997,979
1879.	422	34	12,230	295,748	392	450,925	7,670	6,106	14,566	3,554	864	206	65,622	..	11,988	870,327
1880.	253	26	8,925	274,595	250	565,682	12,095	9,890	21,551	2,391	734	151	60,614	..	15,417	972,564
1881.	309	133	14,485	286,437	1,531	706,940	11,448	16,188	34,414	5,624	643	1,842	119,445	..	19,045	1,168,484
1882.	201	44	23,758	237,461	595	689,910	14,657	44,185	88,398	10,077	613	4,423	139,523	..	14,640	1,268,615
1883.	104	38	15,213	203,539	179	764,615	11,281	63,368	124,187	13,346	769	232	94,394	..	18,257	1,309,754
1884.	182	25	13,062	225,124	947	733,794	15,381	29,338	51,179	5,360	869	474	129,052	..	12,182	1,246,727
1885.	126	10	13,876	171,001	99	699,652	10,700	11,295	34,754	2,267	838	52	100,352	6,482	8,967	1,060,481
1886.	63	..	24,666	174,330	131	863,709	12,797	11,654	50,363	2,321	1,107	96	97,724	41,460	11,068	1,291,519
1887.	74	..	30,738	119,083	119	867,788	31,337	17,159	38,257	1,905	1,391	323	60,414	..	12,062	1,180,050
1888.	153	..	34,492	121,692	61	816,738	21,864	22,807	45,068	1,801	799	56	57,823	..	10,908	1,196,262
1889†.	83	..	41,473	133,674	86	841,102	25,416	22,533	43,051	3,234	835	52	73,451	..	11,987	1,197,277
1890.	349	..	42,678	130,069	109	857,559	22,228	17,668	54,484	1,052	755	78	118,450	..	14,402	1,259,399
1891.	63	..	31,506	133,526	247	736,702	19,450	23,390	41,506	1,189	1,019	55	83,159	..	12,676	1,083,448
1892.	118	1,128	50,487	135,885	4	662,939	19,313	9,689	51,053	391	1,011	18	50,047	..	9,918	992,001
1893.	135	..	76,728	191,742	418	718,484	15,544	13,621	48,466	724	1,203	30	93,729	..	10,043	1,170,867
Total.	3,432	1,731	489,399	3,802,758	13,630	12,611,035	288,966	341,287	872,065	92,408	15,723	8,638	1,688,510	47,942	251,771	20,528,295
Average.	191	96	27,189	211,264	757	700,613	16,054	18,960	48,448	5,134	873	480	93,806	..	13,987	1,140,516

†The Department of Railways and Canals took over these statistics for 1889 and following years.

Forest wealth of Canada.

TABLE 2—Continued.
TRAFFIC ON CANALS—Products of the Forest, by Canals—Fiscal years 1876 to 1893—(From Reports of Departments of Inland Revenue and Railways and Canals.)

Years.	Welland Canal.	St. Lawrence Canals.	Chambly Canal.	Burlington Bay Canal.	Murray Canal.	Ottawa Canals.	Rideau Canal.	St. Peter's Canal.	Trent Valley Canals.	Totals.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1876.....	212,233	203,963	65,008	14,404	.....	428,455	125,634	1,220	5,316	1,056,133
1877.....	271,605	247,868	44,878	13,879	.....	538,139	110,943	.....	40,196	1,267,508
1878.....	208,784	173,756	46,962	4,106	.....	451,808	98,113	.....	14,450	987,979
1879.....	148,709	199,083	49,997	3,855	.....	437,555	90,239	.....	10,889	870,327
1880.....	146,718	145,510	57,955	11,459	.....	508,982	87,384	.....	19,006	972,564
1881.....	173,700	164,848	74,123	22,921	.....	639,418	88,818	382	14,264	1,168,484
1882.....	177,906	160,303	101,970	29,713	.....	703,694	78,451	1,479	15,060	1,268,515
1883.....	158,555	174,026	122,730	14,451	.....	742,002	81,390	1,638	14,962	1,309,754
1884.....	178,826	135,421	109,836	11,083	.....	737,065	72,373	1,374	10,749	1,246,727
1885.....	174,394	104,791	76,271	8,129	.....	621,960	59,465	2,051	12,820	1,060,481
1886.....	211,043	138,910	80,789	4,748	.....	753,405	71,603	2,664	28,347	1,291,519
1887.....	158,196	136,709	77,809	.....	.....	718,599	66,570	2,858	17,309	1,180,060
1888.....	119,354	151,194	103,164	.....	.....	668,106	76,860	4,510	14,075	1,136,262
1889*.....	155,355	139,990	102,102	.....	.....	687,353	91,693	5,293	15,491	1,197,277
1890.....	193,854	134,282	88,955	.....	6,832	698,978	105,297	5,362	25,899	1,253,399
1891.....	137,879	120,061	98,868	.....	4,124	622,329	74,530	2,619	23,038	1,083,448
1892.....	109,447	112,613	123,661	.....	4,530	542,960	73,688	3,420	21,792	992,001
1893.....	165,350	106,092	177,008	.....	7,363	613,503	77,506	4,316	19,730	1,170,867
Totals..	3,102,507	2,671,420	1,602,096	138,748	22,849	11,099,240	1,523,846	39,196	323,393	20,523,295

Total all freight carried by canals, 1887-91..... 14,535,530 tons.
 Carried same period products of forests..... 5,845,480 " = 40.2 per cent.

* The Department of Railways and Canals took over these statistics for 1889 and following years.
 † Formerly Newcastle District Canals.
 Some duplication in departmental canal figures in total freights for 1889-90 and 1891, but thrown out in above.

Forest wealth of Canada.

TABLE 2—Continued.
TRAFFIC ON Canals—Products of the Forest—Fiscal year ending June, 1878.—(From Report of Inland Revenue Department.)

Articles.	Welland Canal.	St. Lawrence Canals.	Chambly Canal.	Burlington Bay Canal.	Ottawa Canals.	Rideau Canal.	St. Peter's Canal.	Newcastle Dist. Canals.	Totals.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bark.....	.....	20	.....	.....	6	281	.....	.....	307
Boat knees.....	.....	116	.....	.....	.....	.....	.....	.....	116
Floats.....	.....	4,796	3,840	.....	3,391	7,303	.....	.....	19,330
Firewood.....	52,046	52,392	1,284	435	121,718	63,426	.....	8,079	239,380
Hoops and hop poles.....	300	1,162	.....	.....	1,347	12,445	.....	.....	3,606
Lumber, sawed.....	56,981	68,557	41,789	755	318,987	.....	.....	2,952	502,466
Masts, spars and telegraph poles.....	.....	5,352	.....	.....	.....	.....	.....	.....	5,352
Railway ties.....	53	200	.....	.....	.....	3,232	.....	172	3,657
Saw-logs.....	5,934	11,820	.....	.....	888	1,696	.....	2,760	23,098
Staves, all kinds.....	6,422	2,249	.....	416	18	348	.....	.....	9,453
Shingles.....	169	74	2	.....	162	121	.....	137	655
Split posts and rails.....	1	2	12	.....	.....	139	.....	.....	154
Timber, square.....	86,628	17,974	.....	2,500	4,949	1,669	.....	350	114,070
Traverses.....	250	9,042	35	.....	902	6,106	.....	.....	16,335
Totals.....	208,784	173,756	46,962	4,106	451,808	98,113	.....	14,450	997,979

TRAFFIC ON Canals—Products of the Forest—Fiscal year ending June, 1879.—(From Report of Inland Revenue Department.)

Bark.....	.....	58	.....	.....	34	330	.....	.....	422
Boat knees.....	34	.....	.....	.....	.....	.....	.....	.....	34
Floats.....	.....	3,732	2,350	.....	2,642	3,506	.....	.....	12,230
Firewood.....	48,742	47,490	1,213	.....	128,827	63,597	.....	5,874	235,748
Hoops and hop poles.....	.....	45	.....	276	25	46	.....	.....	392
Lumber, sawed.....	48,354	37,501	46,236	1,198	302,418	13,234	.....	1,964	450,925
Masts, spars and telegraph poles.....	.....	7,670	.....	.....	.....	.....	.....	.....	7,670
Railway ties.....	47	1,194	.....	.....	16	4,409	.....	.....	6,106
Saw-logs.....	3,768	7,744	13	.....	.....	654	.....	440	14,566
Staves, all kinds.....	2,153	952	.....	381	.....	38	.....	2,386	3,554
Shingles.....	86	148	20	.....	345	245	.....	20	864
Split posts and rails.....	4	.....	.....	.....	47	155	.....	.....	206
Timber, square.....	45,090	15,089	.....	2,000	2,535	703	.....	205	65,622
Traverses.....	400	7,460	140	.....	666	3,322	.....	.....	11,988
Totals.....	148,709	129,083	49,997	3,855	437,555	90,239	.....	10,889	870,327

TABLE 2—Continued.
TRAFFIC ON CANALS—Products of the Forest—Fiscal year ending June, 1880.—(From Report of Inland Revenue Department.)

Articles.	Welland Canal.	St. Lawrence Canals.	Chambly Canal.	Burlington Bay Canal.	Ottawa Canals.	Rideau Canal.	St. Peter's Canal.	Newcastle Dist. Canal.	TOTALS.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bark.....	20	28			83	142			253
Boat keels.....		6							26
Floats.....		3,832	1,038		1,599	2,456			8,925
Firewood.....	47,354	46,950	1,836	300	110,973	58,170	9,012		274,505
Hoops and hop poles.....		69			27	146			250
Lumber, sawed.....	57,816	48,081	54,409	1,331	388,063	15,084		898	565,682
Masts, spars and telegraph poles.....	1,013	10,525	377		30	150		5,720	12,095
Railway ties.....	127	470	22		8	3,533		9,980	9,980
Saw-logs.....	9,416	9,258			22	505		2,350	21,551
Staves, all kinds.....	1,147	51		560		633		2,391	2,391
Shingles.....	53	165		5	253	734			734
Split posts and rails.....	4	3	14		12	258		1	151
Timber, square.....	29,588	17,981	199	9,260	2,241	320		1,025	60,614
Traverses.....	180	8,091	56		671	6,420			15,417
Totals.....	146,718	145,510	57,955	11,459	503,982	87,934		19,006	972,564

TRAFFIC ON CANALS—Products of the Forest—Fiscal year ending June, 1881.—(From Report of Inland Revenue Department.)

Articles.	TRAFFIC ON CANALS—Products of the Forest—Fiscal year ending June, 1881.—(From Report of Inland Revenue Department.)								
	Welland Canal.	St. Lawrence Canals.	Chambly Canal.	Burlington Bay Canal.	Ottawa Canals.	Rideau Canal.	St. Peter's Canal.	Newcastle Dist. Canal.	TOTALS.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bark.....		22			112	175			300
Boat keels.....		133							133
Floats.....		4,416	4,286		1,214	4,329			14,485
Firewood.....	42,078	37,093	972		97,719	52,533	6,042		236,437
Hoops and hop poles.....	8	35	157		40	1,291			1,531
Lumber, sawed.....	45,292	55,005	65,376	1,183	530,906	8,425	392		706,940
Masts, spars and telegraph poles.....	63	10,644	650			91			11,448
Railway ties.....	30	1,790	2,281		779	7,903		3,405	16,188
Saw-logs.....	14,021	12,216			2,275	2,022		3,890	34,414
Staves, all kinds.....	3,132	1,559		287		646			5,624
Shingles.....	30	101	92		270	147			3
Split posts and rails.....	16	3	25	1,600	55	55		100	1,842
Timber, square.....	68,790	23,381	744	19,201	5,462	1,392		475	119,445
Traverses.....		8,450	190		586	9,809			19,045
Totals.....	173,700	154,848	74,123	22,921	639,418	88,818	392	14,264	1,168,484

Forest wealth of Canada.

TABLE 2—Continued.
TRAFFIC on Canals—Products of the Forest—Fiscal year ending June, 1882.—(From Report of Inland Revenue Department.)

Articles.	Welland Canal.		St. Lawrence Canals.		Chambly Canal.		Burlington Bay Canal.		Ottawa Canals.		Rideau Canal.		St. Peter's Canal.		Newcastle Dist. Canals.		Totals.	
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bark.....																		201
Boat knees.....			31	13														44
Floats.....			3,712	9,151														23,788
Firewood.....	41,139		39,662	2,484		60												237,461
Hoops and hop poles.....			37															595
Lumber, sawed.....	46,758		64,318	13,664		1,404												689,910
Masts, spars and telegraph poles.....	495		11,759	15,396														14,657
Railway ties.....	1,019		6,156	5,366														44,185
Saw-logs.....	5,511		1,571	10		2,656												88,398
Staves, all kinds.....	32		148	64														10,077
Shingles.....				89		4,100												643
Split posts and rails.....			2	2,369		21,493												4,423
Timber, square.....	76,735		12,073	360														139,523
Traverses.....	60		7,960															14,640
Totals.....	177,905		160,303	101,970	29,713	703,634	78,451	1,479	15,060	1,268,515								

TRAFFIC on Canals—Products of the Forest—Fiscal year ending June, 1883.—(From Report of Inland Revenue Department.)

Bark.....																		104
Boat knees.....			38															88
Floats.....			4,638	3,948														15,213
Firewood.....	31,813		30,477	2,812		120												203,539
Hoops and hop poles.....			89															179
Lumber, sawed.....	48,409		60,236	93,025		1,311												764,615
Masts, spars and telegraph poles.....	2,166		11,146	11,146														11,281
Railway ties.....	9,514		19,818	22,601														63,368
Saw-logs.....	8,502		21,494	2,275		2,370												124,187
Staves, all kinds.....	25		263	44														13,346
Shingles.....			10	9		5												769
Split posts and rails.....			4	151		10,645												474
Timber, square.....	58,122		13,480	140														94,394
Traverses.....			10,062															18,257
Totals.....	158,555		174,026	122,730	14,451	742,002	81,390	1,638	14,962	1,309,754								

TABLE 2—Continued.
TRAFFIC ON CANALS—Products of the Forest—Fiscal year ending June, 1884.—(From Report of Inland Revenue Department.)

Articles.	Welland Canal.	St. Lawrence Canals.	Chambly Canal.	Burlington Bay Canal.	Ottawa Canals.	Rideau Canal.	St. Peter's Canal.	Newcastle Dist. Canals.	Totals.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bark
Boat knees
Floata.
Firewood
Hoops and hop poles
Lumber, sawn.
Masts, spars and telegraph poles
Railway ties
Saw-logs.
Staves, all kinds
Shingles
Split posts and rails
Timber, square
Traverses
Totals	178,826	135,421	109,836	11,083	727,065	72,373	1,374	10,749	1,246,727

TRAFFIC ON CANALS—Products of the Forest—Fiscal year ending June, 1885.—(From Report of Inland Revenue Department.)

Articles.	Tons.								
	Bark
Boat knees
Floata.
Firewood
Hoops and hop poles
Lumber, sawn
Masts, spars and telegraph poles
Railway ties
Saw-logs.
Staves, all kinds
Shingles
Split posts and rails
Timber, square
Timber, &c., free
Traverses
Totals	174,994	104,791	76,271	8,129	621,960	59,465	2,051	12,820	1,060,481

Forest wealth of Canada.

TABLE 2—Continued.
TRAFFIC ON CANALS—Products of the Forest—Fiscal year ending June, 1886.—(From Report of Inland Revenue Department.)

Articles.	Welland Canal.	St. Lawrence Canals.	Chambly Canal.	Burlington Bay Canal.	Ottawa Canals.	Rideau Canal.	St. Peter's Canal.	Newcastle Dist. Canals.	Totals.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bark.....	4								63
Boat knees.....									
Floats.....	20	3,696			18,720	2,250			24,666
Firewood.....	15,045	22,512	441		83,070	23,300		15,297	174,330
Hoops and hop poles.....		13			18	100			131
Lumber, sawed.....	84,866	55,676	73,804	2,179	593,698	39,289	2,664		863,700
Masts, spars and telegraph poles.....	29	336		9	1,130	3,621		127	12,797
Railway ties.....	2,496	22,702	6,267		11,664	520		9,255	50,363
Saw logs.....	5,013	57			11,517			2,321	2,321
Staves, all kinds.....	1,273	187		3	473	66		91	1,107
Shingles.....	386	7			4	46			96
Split posts and rails.....		12,248	120	2,557	2,628	684		800	97,724
Timber, square.....	49,065				41,460				41,460
Timber, &c., free.....		8,878			486				11,088
Traverses.....									
Totals.....	211,043	138,910	80,799	4,748	753,405	71,603	2,664	28,347	1,291,519

TRAFFIC ON CANALS—Products of the Forest—Fiscal year ending June, 1887.—(From Report of Inland Revenue Department.)

Articles.	Products of the Forest—Fiscal year ending June, 1887.—(From Report of Inland Revenue Department.)								
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bark.....	4				18	52			74
Boat knees.....									
Floats.....	20	4,256			23,704	2,758			30,738
Firewood.....	15,045	13,625	360		62,703	18,096		9,264	119,083
Hoops and hop poles.....		11			60	48			119
Lumber, sawed.....	84,866	61,637	72,692		603,513	39,241	2,858		867,788
Masts, spars and telegraph poles.....	29	21,027			10,256	25			31,337
Railway ties.....	2,496	1,946	4,468		3,049	4,969		211	17,159
Saw logs.....	5,013	17,841			11,241			4,025	38,257
Staves, all kinds.....	1,273	32				137			1,305
Shingles.....	386	189	264		417	38		143	1,391
Split posts and rails.....		1	25		254	43			323
Timber, square.....	49,065	7,830			2,694	140		695	60,414
Timber, &c., free.....		10,364			690				12,062
Traverses.....									
Totals.....	158,196	138,709	77,809		718,699	66,570	2,858	17,309	1,180,050

TABLE 2—Continued.
TRAFFIC ON CANALS—Products of the Forest—Fiscal year ending June, 1888—(From Report of Inland Revenue Department.)

Articles.	Welland Canal.	St. Lawrence Canals.	Chambly Canal.	Ottawa Canals.	Ridesau Canal.	St. Peter's Canal.	Newcastle Dist. Canals.	Totals.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bark.....					104		45	153
Boat knees.....								
Floats.....		4,786	430	28,696	580			34,492
Firewood.....	19,620	20,118	300	52,485	19,932		9,237	121,692
Hoops and hop poles.....		9		29	23			61
Lumber, sawed.....	46,679	63,292	92,668	559,632	48,576	4,510	1,381	816,738
Masts, spars and telegraph poles.....		21,799		65				21,864
Railway ties.....	2,596	2,867	9,661	3,657	5,749		177	24,807
Saw-logs.....	11,092	15,803		14,471	822		2,880	46,068
Staves, all kinds.....	1,171	630						1,801
Shingles.....	35	82	45	501	41		95	1,799
Split posts and rails.....		10	8	5	33			56
Timber, square.....	38,161	11,626	52	7,724			260	57,823
Traverses.....		10,968		840				10,968
Totals.....	119,354	151,194	103,164	668,105	75,860	4,510	14,075	1,136,262

Forest wealth of Canada.

TABLE 2—Continued.
TRAFFIC ON CANALS—Products of the Forest—Fiscal year ending June, 1889.—(From Report of Department of Railways and Canals.)

Articles.	Welland Canal.	St. Lawrence Canal.	Chambly Canal.	Ottawa Canals.	Rideau Canal.	St. Peter's Canal.	Trent Valley Canal.	Totals.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bark.....					83			83
Boat knees.....								
Floats.....	429	4,694	333	35,187				41,473
Firewood.....	17,922	10,729	780	68,670	22,676		12,897	133,674
Hoops and hop poles.....		10		14	62			86
Lumber, sawed.....	74,280	53,049	92,678	555,932	59,412	5,293	449	841,102
Masts, spars and telegraph poles.....		24,897			519			26,416
Railway ties.....	603	3,693	8,084	3,423	6,889		141	22,833
Saw-logs.....	5,650	22,843		12,657	676		1,225	43,051
Staves of all kinds.....	2,040	1,192		1				3,234
Shingles.....	23	59	87	548	44		74	835
Split posts and rails.....		21		11	20			52
Timber, square.....	54,399	7,191	126	10,810	220		706	73,451
Traverses.....		11,612	14	100	261			11,987
Totals.....	*155,355	†139,990	102,102	687,353	91,693	5,293	15,491	1,197,277
Free goods.....	1,416	19,440						20,856

* Welland Canal—1,416 tons square timber passed free, having paid toll and been recorded at St. Lawrence Canals.

† St. Lawrence Canals—6,532 tons lumber, 1,398 tons staves, 11,510 tons square timber, total, 19,440 tons, passed free, having paid toll and been recorded at Welland Canal.

TABLE 2—Continued.

TRAFFIC ON CANALS—Products of the Forest—Fiscal year ending June, 1890.—(From Report of Department of Railways and Canals.)

Articles.	Welland Canal.	St. Lawrence Canals.	Chambly Canal.	Murray Canal.	Ottawa Canals.	Rideau Canal.	St. Peter's Canal.	Trent Valley Canal.	Totals.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bark.....					13			336	349
Boat knees.....									42,678
Floats.....		5,524			32,746	4,358		50	130,009
Firewood.....	13,707	12,146	4,568	228	46,432	34,914		18,014	109
Hoops and hop poles.....		3			27				857,569
Lumber, sawn.....	80,898	50,040	81,955	85	584,731	53,779	5,362	709	22,228
Masts, spars and telegraph poles.....	225	21,884			8	6,948		111	17,668
Railway ties.....	949	1,596	2,350		5,608	559		217	54,484
Saw-logs.....	3,036	18,179			27,847	559		4,863	1,032
Staves, all kinds.....	860	156		8					755
Shingles.....	33	70	64	11	323	166		88	78
Split posts and rails.....	17	11	18			18		11	118,048
Timber, square.....	94,129	12,799		6,500	1,240	1,890		1,500	14,402
Traverses.....		11,874				2,528			
Totals.....	* 193,854	† 134,282	88,955	6,832	698,978	105,237	5,362	25,899	1,259,399
Free goods.....	290	10,179							10,469

* Welland Canal—290 tons saw-logs passed free, having paid toll and been recorded at St. Lawrence Canals.

† St. Lawrence Canals—580 tons floats, 6,280 tons lumber, and 3,319 tons square timber, total 10,179 tons, passed free, having paid toll and been recorded at Welland Canal.

Forest wealth of Canada.

TABLE 2—Continued.

TRAFFIC ON CANALS—Products of the Forest—Fiscal year ending June, 1891.—(From Report of Department of Railways and Canals.)

Articles.	Welland Canal.	St. Lawrence Canal.	Chambly Canal.	Murray Canal.	Ottawa Canals.	Rideau Canal.	St. Peter's Canal.	Trent Valley Canal.	Totals.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bark.....	.....	.....	.....	.....	15	31	.....	17	63
Boat knees.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Floats.....	.....	5,572	.....	.....	23,880	1,587	.....	457	31,506
Firewood.....	13,332	12,667	8,833	1,506	53,932	26,840	.....	16,416	133,526
Hoop and hop poles.....	.....	1	.....	.....	246	.....	.....	.....	247
Lumber, sawn.....	56,586	39,840	85,620	854	512,422	38,343	2,619	418	736,702
Masts, spars and telegraph poles.....	27	18,522	.....	28	823	94	.....	456	19,450
Railway ties.....	207	1,004	4,223	153	12,000	5,301	.....	402	23,380
Saw-logs.....	4,759	0,562	.....	.....	13,328	668	.....	2,199	41,566
Staves, all kinds.....	150	9	.....	16	422	154	.....	172	1,019
Shingles.....	14	49	192	7	11	29	.....	8	55
Split posts and rails.....	.....	10,981	.....	1,560	5,460	741	.....	1,613	83,159
Timber, square.....	62,804	10,884	.....	.....	200	742	.....	880	12,676
Traverses.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals.....	.....	† 120,061	98,968	4,124	622,329	74,580	2,619	23,038	1,083,448
Free goods.....	* 137,879	6,067	.....	.....	.....	.....	.....	.....	6,393

* Welland Canal—25 tons railway ties, 301 tons saw-logs, total 326 tons, passed free, having paid toll and been recorded at St. Lawrence Canals.

† St. Lawrence Canals—3,347 tons lumber, 400 tons split posts and rails, 2,320 tons square timber, total 6,067 tons, passed free, having paid toll and been recorded at Welland Canal.

TABLE 2—Continued.

TRAFFIC on Canals—Products of the Forest—Fiscal year ending June, 1892.—(From Report of Department of Railways and Canals.)

Articles.	Welland Canal.		St. Lawrence Canals.		Chambly Canal.		Murray Canal.		Ottawa Canals.		Rideau Canal.		St. Peter's Canal.		Trent Valley Canal.		Totals.	
	Tons.		Tons.		Tons.		Tons.		Tons.		Tons.		Tons.		Tons.		Tons.	
Bark.....			13									73				32		118
Boat knees.....																1,127		1,128
Floats.....	40		4,204		3				45,500			740						50,487
Firewood.....	9,321		11,673		24,629		342		43,772			31,944				14,204		135,885
Hoops and hop poles.....									4									4
Lumber, sawed.....	70,122		42,389		97,075		852		414,472			33,539				1,070		662,989
Masts, spars and telegraph poles.....			19,068		1,919		27		40			34				171		19,313
Railway ties.....	241		526						435			6,246				295		9,689
Saw-logs.....	3,190		14,577						23,824			248				3,214		51,053
Staves, all kinds.....	383		8															391
Shingles.....	19		10		35		4		634			138				171		1,011
Split posts and rails.....									4			14						18
Timber, square.....	26,131		10,769				3,305		8,044			515				1,283		50,047
Traverses.....			9,376						220			97				225		9,918
Totals.....	109,447		511,261		123,661		4,530		542,950			73,588				21,792		992,001
Free goods.....	263		5,826															6,089

a. Welland Canal—263 tons saw-logs passed free, having paid toll and been recorded at St. Lawrence Canals. b. St. Lawrence Canals—3,738 tons lumber, 128 tons staves, 1,960 tons square timber—total 5,826 tons passed free, having paid toll and been recorded at Welland Canal.

Forest wealth of Canada.

TABLE 2—Continued.

TRAFFIC ON CANALS—Products of the Forest—Fiscal year ending June, 1893.—(From Report of Department of Railways and Canals.)

Articles.	Welland Canal.	St. Lawrence Canals.	Chambly Canal.	Murray Canal.	Ottawa Canals.	Rideau Canal.	St. Peter's Canal.	Trent Valley Canal.	Totals.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bark		5				52		78	135
Boat knees									
Floats	4	7,172			68,020	1,380		152	76,728
Firewood	6,162	13,271	82,204	229	40,857	36,875		12,144	191,742
Hoops and hop poles			347		30	41			418
Lumber, sawed	107,388	39,968	89,048	2,436	441,927	32,109	4,316	1,302	718,484
Masts, spars and telegraph poles	5	13,092			415	54		1,978	15,544
Railway ties	128	148	5,366	25	1,901	5,803		250	13,621
Saw-logs	3,792	15,456			27,323	266		1,629	48,466
Staves, all kinds	489	224		1					724
Shingles	25	31	43	72	449	101		482	1,203
Split posts and rails					21				30
Timber, square	47,347	9,117		4,600	30,960			1,505	93,729
Traverses		7,618			1,600	615		210	10,043
Totals	165,350	106,092	177,008	7,363	613,503	77,505	4,316	19,730	1,170,867
Free goods		c1,142							1,142

c. Passed free, having paid tolls and been recorded at Welland Canal.

TABLE 3 (a)
EUROPEAN Forests—Area and ownership.

Date.	Country.	Per Cent Forest.	Forest Area. Acres.	State or Crown Lands. Acres.	Municipal Institutions, &c. Acres.	Private. Acres.	Not Specified. Acres.	Remarks.
a. 1893	Austria	32.58	24,172,360	2,347,868	3,524,284	18,300,228		
a. 1892	Hungary	23.52	18,777,771	2,923,555	6,481,739	9,372,477		
a. 1893	Belgium	17.08	1,243,507	61,945	403,197	778,365		
a. 1892	Bosnia and Herzegovina	49.00	6,699,456				6,699,456	
a. 1888	Bulgaria	4.64	1,136,906				1,135,906	
b. 1887	Denmark	4.80	469,490				469,490	
a. k. 1893	France	17.92	23,466,450	2,691,156	4,738,464	(f) 16,036,830		
a. e. 1893	German Empire	25.70	34,367,651	11,341,325	6,529,884	16,496,472		
a. c. 1889	Greece	12.60	2,025,490	1,620,320		405,080		
a. a. 1891	Holland	6.93	561,456			9,705,400		
a. c. 1892	Italy	14.31	10,131,235	425,835		16,395,332		
a. f. c. 1889	Norway	24.53	19,288,326	2,314,635	578,659	1,109,877		
a. 1892	Portugal	5.25	1,163,941	53,964			2,687,930	Municipal included with private.
a. b. 1893	Roumania	15.22	4,942,000	2,254,070		199,280,000		
a. c. 1892	Russia (Europe)	37.15	498,200,000	298,920,000			5,763,163	
a. 1891	Servia	48.00	5,763,163	722,656	15,632,285			Of this 629,850 acres cork trees.
a. 1890	Spain	13.03	16,354,941	14,300,000		30,190,000		The British consul from official report gives 66.67 per cent forest, 68,256,171, apparently including some un-wooded state lands.
a. 1890	Sweden	40.65	44,480,000	86,161	1,394,942	577,915		The British consul gives: Ottoman Empire forest area, 26,741,717 acres, state, 18,328,717, private, 7,413,000
a. 1893	Switzerland	20.12	2,059,018					
d. 1892	Turkey (Europe)	8.93	3,500,000				3,500,000	
i. 1892	United Kingdom	4.00	2,695,000				2,695,000	
	Europe	30.26	721,497,271	340,063,490	39,283,404	318,637,976	23,512,401	

a. British representatives' special reports.
 b. L'Economiste Français, July, 1888.
 c. Schlich—"Manual of Forestry," 1884.
 d. Statesman's Year Book, 1893.
 e. U. S. Cons. Rep., "Forestry in Europe," 1887.
 f. U. S. Cons., Rep. No. 122, 1890.
 g. do do 143, 1892.
 h. do do 125, 1891.
 i. Hazell's Annual, 1893.
 k. Official Forestry Report (French Department of Agriculture), 1894.
 l. The private forests are as ascertained by the cadastral valuations of 1879-81.

Forest wealth of Canada.

TABLE 3 (b).—FOREST STATISTICS

FORESTS in America, Asia, Africa and Australasia.

Date.	Countries.	Per Cent Forest	Total Forest.	State or Crown.	Municipal and Private.	Remarks.
			Acres.	Acres.	Acres.	
1894..	Canada	37·66	799,230,720	.....	.....
1894..	United States.....	23·29	450,000,000	.....	.....
a. 1893..	British Guiana.....	18·00	5,760,000	.....	.....
b. c. 1893..	India.....	25·00	140,000,000	70,000,000	70,000,000	{ 33,000,000 acres reserved State (perpetual). 22,000,000 acres State protected. 15,000,000 do Government, not under Forest Department.
c. 1892..	Turkey in Asia.....	.....	17,500,000	.....	.....
i. 1888..	Japan.....	30·24	28,700,000	.....	.....
d. 1887..	Algiers.....	5·50	5,833,100	5,068,060	775,040	
e. 1887..	Cape Colony .....	.....	224,000	.....	.....
f. 1887..	New South Wales.	10·00	19,230,000	5,400,000	.....
g. 1889..	Victoria.....	.....	.....	1,355,442	.....	State, 664,710 acres; timber re- sources, 690,732 acres. Does not include other forests.
g. 1889..	South Australia.....	.....	.....	165,324	.....	Including 6,685 acres enclosed for planting. Does not include other forests.
h. 1882..	New Zealand	29·61	20,000,000	10,000,000	10,000,000	

- a. Hon. J. J. Quetch, Forestry Congress, World's Fair.
- b. Schlick's Manual of Forestry 1884.
- c. Statesman's Year Book, 1893.
- d. U. S. Consular Reports—"Forestry in Europe."
- e. do Report, Vol. 24.
- f. Schlick—Proceedings R. Colon. Instit., Vol. xxi: 1889-90.
- g. U. S. Consular Reports, Vol. 23.
- h. do do Commercial No. 25.
- i. Heinrich Semler, 1888.

TABLE 3 (c).

Wood and Products of the Forest Imported and Exported by the Countries named, with the Area in Forest.

Country.	Years.	Unit of Value.	Exports.	Equivalent in \$ Exports.	Imports.	Equivalent in \$ Imports.	Exports + or - Imports.	Per cent of Area in Forest.
				\$		\$	\$	p. c.
Austria-Hungary	1881	Gulden.	68,057,000	27,700,000	5,898,000	2,400,486	+ 25,300,000	30
do	1891	do	81,771,000	33,252,000	4,273,000	1,739,110	+ 31,513,000	30
Belgium	1881	Franc.			49,658,000	9,584,000	- 9,584,000	17
do	1891	do			60,887,000	11,752,000	- 11,752,000	17
Canada	1881	\$	23,643,000	23,643,000	2,206,400	2,206,400	+ 21,436,600	38
do	1891	\$	27,169,000	27,169,000	2,593,200	2,593,200	+ 24,575,000	38
Denmark	1881	Kroner.	3,333,000	899,910	18,033,000	4,868,910	- 3,969,000	5
do	1891	do	3,311,000	893,970	19,463,000	5,265,000	- 4,371,030	5
France	1881	Franc.	31,729,000	6,123,700	211,387,000	40,797,700	- 34,674,000	18
do	1891	do	47,362,000	9,140,900	251,267,000	48,492,600	- 39,351,700	18
Germany	1881	Mark.	41,400,000	9,853,200	109,600,000	25,084,800	- 15,231,600	26
do	1891	do	51,306,000	12,328,400	137,600,000	32,448,800	- 20,120,400	26
Holland	1881	Gulden.			18,282,000	7,440,600	- 7,440,600	7
do	1891	do			23,562,000	9,590,000	- 9,590,000	7
Italy	1881	Lire			33,820,000	6,494,000	- 6,494,000	14
do	1891	do			26,483,000	5,084,740	- 5,084,740	14
Norway	1881	Kroner.	37,802,000	10,206,540			+ 10,206,540	25
do	1891	do	30,422,000	8,213,900			+ 8,213,900	25
Roumania	1881	Lei.	6,902,000	1,158,400	7,377,000	1,423,800	- 265,400	15
do	1891	do	2,778,000	536,200	2,030,000	391,800	+ 144,400	15
Russia	1881	Rouble.	29,635,000	23,115,300	2,200,000	1,711,600	+ 21,403,700	38
do	1891	do	43,306,000	33,778,680	4,428,000	3,463,840	+ 33,324,840	38
Spain	1881	Peseto.			31,610,000	6,100,100	- 6,100,100	13
do	1891	do			42,990,000	8,297,100	- 8,297,100	13
Sweden	1881	Kroner.	99,901,000	26,973,270	1,195,000	322,650	+ 26,650,600	40
do	1891	do	111,376,000	30,071,500	4,725,000	1,275,750	+ 28,704,750	40
Switzerland	1881	Franc.	8,341,000	1,609,800	3,826,000	738,420	- 871,200	20
do	1891	do	6,033,000	1,164,400	7,972,000	1,538,600	- 374,200	20
United Kingdom	1881	£.			14,596,366	71,084,302	- 71,084,302	4
do	1891	£.			16,766,996	81,655,270	- 81,655,270	4
United States	1881	\$	18,600,000	18,600,000	11,652,000	11,652,000	+ 6,948,000	25
do	1891	\$	28,715,700	28,715,700	19,888,200	19,888,200	+ 8,827,500	25
India	1881	₹.	545,831	2,658,196				25
do	1891	₹.	695,259	3,338,911				25

TABLE 3 (d).—POPULATION and Forest Area per Head.

Country.	Acres, Area in Forest.	Population, 1891.	Acres, Forest area per head.
Norway	19,288,626	2,001,000	9.64 acres.
Sweden	44,480,000	4,802,751	9.26 " "
Denmark	469,490	2,185,335	0.21 of an acre.
Germany	34,367,650	49,428,470	0.69
Holland	561,330	4,621,744	0.12
Belgium	1,243,507	6,136,444	0.20
France	23,538,936	38,343,192	0.61
Switzerland	2,059,018	2,950,000	0.70
Spain	16,348,322	17,290,000	0.94
Italy	10,250,000	30,350,000	0.34
Austria-Hungary	42,950,130	41,358,886	1.04
Roumania	2,254,000	5,500,000	0.41
United States	450,000,000	64,000,000	7.03
United Kingdom	2,695,000	37,795,000	0.07
Canada	799,000,000	4,833,240	163 acres.
Russia, Europe	387,600,000	97,600,000	3.97

Forest wealth of Canada.

TABLE 4 (a).

*AREA of Forests and Woodlands of Canada.

Provinces.	Total Area.	aForest and Woodland.	Percentage Woodland.	bPine lands, White and Red Pine.	cOther Woods.
	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.
Ontario	219,650	102,118	46·49	38,808	63,310
Quebec	227,500	116,521	51·22	31,468	85,053
New Brunswick.....	28,100	14,766	52·55		
Nova Scotia	20,550	6,464	31·45		
Prince Edward Island.....	2,000	797	39·85		
Manitoba	64,066	25,626	40·00		
British Columbia.....	382,300	285,554	74·69		
The Territories.....	2,371,481	696,952	29·38		
Total, Canada.....	3,315,647	1,248,798	37·66		

*A careful estimate has been prepared of the areas of forest and woodland—distinguishing the pine lands—of the various provinces and territories of Canada. This estimate has been founded upon the returns of the provinces as to their licensed lands, and the reports of their surveyors—similar returns by the Departments of the Interior and of Indian Affairs for their licensed lands and the reports of their surveyors—the maps and the reports of the Geological Survey—the census returns and any other trustworthy data procurable.

It must be admitted that the data now available are not sufficiently exact or full to make these estimates as precise as is desirable. Much more detailed information might be compiled by the provincial governments from the reports of their surveyors, timber agents and other officials, especially in regard to the state of existing limits and of those that have been worked out, but no such information is published by them so as to be available for estimating the forest wealth of the country.

a. The area of woodland thus estimated is far from all being forest fit for lumbering, much being covered with small growth, of some use locally, but of little, if any merchantable value.

b. Pine lands thus estimated must not be supposed to be dense forests of pine, but in most cases as having a more or less considerable quantity of white and red pine mingled with other timber. In the Maritime Provinces the greatly diminished pine is so scattered through the woods that no estimate of area can be formed. In Manitoba and the Territories there is no white or red pine, nor in British Columbia, where the white pine (*P. strobus*) of Eastern Canada, is absent, being replaced by Douglas fir, cedar, spruce, &c.

c. There are no sufficient data at present for even an approximate estimate of the area or quantity of spruce in the Dominion.

Province of Ontario—Wooded Area.

Settled counties, south of timber limits.	31,530	7,834	25·	100	7,734
Lands under timber licenses	21,380	20,311	95·	16,250	4,061
From limits to height of land, east of Thunder Bay.....	48,823	36,617	75·	18,308	18,309
Total, south of height of land, east of Thunder Bay.	101,733	64,762	63·65	34,658	30,204
Thunder Bay and Rainy Lake districts, south of height of land	49,700	24,850	50·	4,000	20,850
Country north of height of land.....	68,216	12,506	18·33	150	12,356
Total, Province of Ontario.....	219,650	102,118	46·49	38,808	63,310

Settled counties.—Area from census. Percentage of woodland 25, according to best authorities. A little pine in some spots.

Lands under license.—Area as given by province (less 470 miles in Thunder Bay and Rainy Lake districts), by Department of Indian Affairs, and ten townships of the old Canadian Land and Emigration Co. Area of woodland estimated at 95 per cent, leaving 5 per cent for burnt land, &c. Proportion of pine land estimated at 80 per cent.

To height of land.—Remainder of total area in census of 1871. Area of woodland estimated at 75 per cent; proportion of pine land estimated at 50 per cent.

Thunder Bay and Rainy Lake, south of height of land.—Area computed. Area of woodland estimated at 50 per cent. Pine estimated at 4,000 square miles (470 square miles licensed by province).

North of height of land.—Area computed. Two-thirds partly wooded, proportion 25 per cent, and one-third peat moss, &c.; proportion, wooded, 5 per cent. A little pine in spots.

TABLE 4 (a).—Continued.

Province of Quebec—Wooded Area.

Description.	Total Area.	Forest and Woodland.	Percentage.	Pine Land.	Other Woods.
	Sq. miles.	Sq. miles.	Woodland.	Sq. miles.	Sq. miles.
Lands granted	33,563	11,391	33·94		11,391
Lands licensed	50,119	47,603	95	26,000	21,603
Vacant Crown lands	143,818	57,527	40	5,468	52,059
Total, Quebec	227,500	116,521	51·22	31,468	85,053

Lands granted.—Total area from provincial returns. Proportion of woodland from census and other authorities. Inconsiderable quantity of pine, not estimated.

Lands licensed.—Area as given by province. Estimated proportion of forest, 95 per cent, leaving 5 per cent for burnt land, &c. Proportion of pine estimated at 90 per cent of leased area in Upper Ottawa district, 75 per cent for Lower Ottawa, 50 per cent for St. Maurice, and 700 square miles for rest of licensed land.

Vacant Crown Lands.—The total area is the remainder of the province, as computed by the Dominion Survey authorities, which somewhat exceeds the provincial estimate. The percentage of woodland, proportion of pine and other woods, are taken from official publication of Crown Lands Department, Quebec.

The Maritime Provinces.

New Brunswick—Wooded Area.

Vacant Crown lands	7,915	5,936	75		
Licensed land	4,420	4,200	95		
Granted lands	15,765	4,630	29·37		
Total	28,100	14,766	52·54		

The areas are from provincial official figures. Woodland in licensed area is estimated at 95 per cent; on vacant Crown lands 75 per cent; on granted lands from census. Pine lands cannot be estimated, as there are no provincial data and the pine trees are scattered through the forest.

Nova Scotia—Wooded Area.

Not granted	1,562	78	5		
Granted	18,988	6,386	33·63		
Total	20,550	6,464	31·45		

Areas from provincial returns. Crown lands, described as rocky and barren, are estimated to have 5 per cent wooded. On granted lands, woodland from census. Pine, fast disappearing, is scattered through the forest.

Prince Edward Island—Wooded Area.

Not granted	70	22	75		
Granted	1,930	775	40·15		
Total	2,000	797	39·85		

Areas from official returns. Crown lands, described as wooded, are estimated at 75 per cent; on granted lands, woodland from census. There is a little scattered pine.

Forest wealth of Canada.

TABLE 4 (a)—*Concluded.*

Province of Manitoba—Wooded Area.

Province.	Total Area.	Forest and Woodland.	Percentage Woodland.
	sq. miles.	sq. miles.	
Manitoba	64,066	25,626	40·0

The wooded area is estimated from the maps and reports of the Geological Survey and the Department of the Interior. Much of the woodland does not contain merchantable timber, large tracts being covered with poplar or small spruce, tamarack, &c., of little value.

There is no white or red pine, except a few scattered trees in the extreme south-east portion.

Province of British Columbia—Wooded Area.

British Columbia	382,300	285,554	74·69
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The wooded area is estimated from the maps and reports of the Geological Survey and the Department of the Interior. In the central plateau of agricultural lands what wood is found is chiefly small poplar, &c., of little value.

The white pine of eastern Canada (*P. strobus*) is not found on the Pacific Coast, the Douglas fir, the yellow cedar and the spruces being the chief trees for timber and lumber.

*The Territories—Wooded Area.

Alberta	105,355	64,662	61·38
Assiniboia	88,534	5,127	5·79
Saskatchewan	101,092	59,017	58·38
Athabasca	103,300	59,300	57·40
Unorganized Territories	1,973,200	508,846	25·78
Total Territories	2,371,481	696,952	29·39

*Details of Unorganized Territories.

Keewatin	267,000	100,125	37·50
North-west Territories	859,600	300,860	35·00
East of Keewatin, south of Hudson Bay	194,300	72,861	37·50
East of Hudson Bay	352,300	35,000	1·00
Islands in Arctic Ocean and Hudson Bay	300,000	.....	.....
Total Unorganized Territories	1,973,200	508,846	25·78

*The wooded areas are estimated from the maps and reports of the Geological Survey and the Department of the Interior. A large portion of the wooded area contains no merchantable timber, but is covered with small poplar, spruce, tamarack, &c.

There is no white or red pine in the Territories, but in the part of Alberta on the foothills of the Rocky Mountains there is found the Douglas fir and other British Columbia timber.

TABLE 4 (b).

APPROXIMATE Estimate of the Quantity of Pine in Canada.

	Feet B.M.
For Ontario, a careful estimate gives 38,808 square miles of pine lands. Assuming half a million feet, board measure, to the mile, which is the provincial estimate for the land under license, and is probably about correct, while the unlicensed area is not likely to produce more, seeing that the pine grows sparser and smaller to the northward and westward, we have in feet, board measure.....	19,404,000,000
For Quebec, a similar estimate gives 31,468 square miles of pine lands. Assuming the same proportionate yield, we have.....	15,734,000,000
For the Maritime Provinces, a similar estimate gives 22,027 square miles of woodland of all kinds. Assuming a fifth part to be pine (probably in excess of the reality) and applying the same measurement, we have.....	2,200,000,000
Total pine from Atlantic to Rocky Mountains.....	<u>37,338,000,000</u>

1. Even at the low estimate of an annual cut of 1,000,000,000 feet B.M., this would exhaust the present supply in about 37 years. And under the present system the annual growth could not greatly prolong that period.

2. No estimate can at present be formed of the amount of Douglas fir and other woods, which in British Columbia supply in a measure the place of our eastern pines.

3. Neither are there sufficient data for even an approximate estimate of the amount of spruce. There is an immense quantity, for it extends from the Atlantic to the Pacific, from the international boundary to the delta of the Mackenzie River, and is found almost everywhere except on the prairies and the barrens, but much of it is very small. Besides its growing use for lumber, the demand for pulpwood is making inroads on the spruce forests.

Forest wealth of Canada.

TABLE 4 (c).

PROVINCIAL AND DOMINION LICENSES: AREA OF LIMITS, QUANTITIES CUT, AND RECEIPTS.

The area of limits in Ontario is understated in the provincial returns. This appears to arise from leases being in suspense at the beginning of the years for non-payment of dues. There is therefore added a column in the following tables showing the area as calculated from the rents at \$3 a square mile, which approximates very closely to the statement by the Ontario Crown Lands Department that 20,000 square miles are under license.

There is a similar though proportionately smaller understatement in the case of Quebec. A Crown Lands publication gives the area under license at 50,000 square miles.

In British Columbia, Manitoba and the Territories, in addition to the timber limits, permits are granted by which cutting takes place on land not included in the leased area.

In Nova Scotia and Prince Edward Island there are no leases of limits, the lumbering being done on purchased land. These provinces publish no returns.

The scales for measuring saw-logs, to ascertain the board measure contents, differ in Ontario and Quebec. The discrepancy varies with different sized logs, but averages fully ten per cent additional by the Quebec scale.

The cut of spruce saw-logs in Ontario cannot be given separately, as they are included with "other logs." The whole amount is not large, and only a small proportion is spruce.

Spruce is similarly included with "other logs" in the Quebec returns. This whole amount is large and a great proportion is spruce.

In New Brunswick pine and spruce saw-logs are returned together, and cannot be given separately. The number of logs is not stated, but only the measurement.

In the returns from British Columbia, Manitoba and the Territories, there is no discrimination between the kinds of saw-logs, all being given together, and by measurement only without the number of logs. In Manitoba and the Territories they are chiefly spruce; in British Columbia chiefly Douglas fir, with considerable spruce and cedar.

The province of British Columbia gives no returns for 1887.

The boom and dimension timber in the Ontario returns is chiefly pine (much of it red), as is shown by the returns for 1892 and 1893, where the pine is given separately.

In the Quebec returns boom timber is given by linear feet for 1887-90, and by board measure for 1891-93.

British Columbia, Manitoba and the Territories do not report any square or dimension timber, though besides local use, some is exported from British Columbia, and some sent to other parts of Canada. A part may be cut by permit on unleased lands, and a part measured with the saw-logs and so returned.

A large part of the forest produce of British Columbia is from the railway belt, 40 miles wide by 500 miles long, belonging to the Dominion.

The receipts returned by the province of Ontario for 1892 included only a part of the large bonus from the sale of that year, more than a million dollars remaining unpaid, and swelling the receipts for 1893.

The tables giving the cut of pine in Ontario and Quebec by districts, show the location of that timber. In Quebec it will be seen that the bulk of the pine comes from the Ottawa valley, the St. Maurice being the only other district from which the amount is not trifling.

The table (Table 5b) giving the average dimensions of saw-logs and square timber shows a great falling off in the size of the pine logs in Ontario, while in Quebec the returns show an increase till 1893, when there was a considerable fall. The size of spruce has diminished in Ontario and increased in Quebec. In making comparisons, the difference of the scales used in Ontario and Quebec, giving, as already mentioned, a greater board measure for Quebec by about ten per cent, should be kept in mind.

Appended are the following tables :—

Area of Limits, cut of Lumber, &c., and Receipts.

Ontario—Provincial lands.....	six years.
do Indian lands.....	do
do Total.....	do
Quebec—Provincial lands.....	do
do Indian lands.....	do
do Total.....	do
New Brunswick—Provincial lands.....	do
do Indian lands.....	do
do Total.....	do
British Columbia—Dominion lands.....	do
do Provincial lands.....	do
do Indian lands.....	do
do Total.....	do
Manitoba and the Territories—Dominion lands.....	do
Cut of pine by districts—Ontario.....	do
do do Quebec.....	do
*Averagedimensions of saw-logs and square timber—Ontario	do
do do do Quebec.	do

*See Table 5b.

Forest wealth of Canada.

TABLE 4 (c)—Continued.
 ONTARIO.—Area and Amount of Cut.—(From Ontario Crown Lands Returns and Department of Indian Affairs.)
Total from Provincial and Indian Lands.

Years.	AREA COVERED BY LICENSES.			SAW-LOGS.				SQUARE TIMBER.								RECEIPTS.			
	By Provincial Returns	By Rent at \$3.	Sq. Miles.	Pine.		Other.		White Pine.		Red Pine.		Other.		Timber Dues.		Ground Rents.	Bonus.	Total Receipts.	
				Feet.	B. M. Pieces.	Feet.	B. M. Pieces.	Feet.	B. M. Pieces.	Feet.	B. M. Pieces.	Feet.	B. M. Pieces.	Feet.	B. M. Pieces.				Feet.	B. M. Pieces.	$	cts.	$	cts.
1887	16,832	20,383	4,715.587	577,442,195	30,908	2,440,369	41,402	2,197,079	11,510	461,203	1,907	45,359	1,907	45,359	147,578	31,235,880			
1888	17,914	20,611	6,499,518	715,476,978	36,684	2,862,000	56,831	3,134,629	11,486	433,256	1,933	38,425	1,933	38,425	232,491	41,891,060			
1889	18,179	20,763	6,936,338	740,078,978	47,362	3,847,391	89,160	4,798,567	10,890	400,114	1,899	13,257	1,899	13,257	159,625	33,948,530			
1890	14,465	20,276	5,140,451	529,731,673	44,697	3,420,329	62,444	3,237,019	4,245	166,466	1,768	70,216	1,768	70,216	152,544	34,184,428			
1891	16,681	20,098	4,976,362	477,384,116	93,280	4,238,710	31,300	1,563,540	557	22,339	2,646	112,251	2,646	112,251	207,900	38,051,068			
1892	13,740	20,393	6,670,139	626,422,425	110,818	5,615,284	73,564	3,841,863	428	17,466	1,991	74,472	1,991	74,472	255,954	45,488,563			
1893	18,142	21,542	7,770,104	748,814,910	157,786	8,801,661	38,435	1,975,600	940	40,983	1,361	50,229	1,361	50,229	132,197	25,475,763			
Totals	115,966	144,067	42,708,519	4,415,351,034	521,535	31,225,744	393,226	20,748,286	40,056	1,542,326	10,505	404,209	10,505	404,209	1,298,289	250,275,002			
Average	16,565	20,581																	
Years.	Cedar.		Spars.	Pile Timber.	Railroad Ties.	Tele-graph Poles.	Ralls, Traverses, &c.	Single Bolts.	Pulp wood.	Posts, Stave-bolts, &c.	Fire-wood, Tan-bark, &c	Trespass and Interest.	Timber Dues.	Ground Rents.	Bonus.	Total Receipts.			
	Lin. ft.	Pos.															Feet. B. M.	Pieces.	Pieces.
1887	386,240	26	6,765,244	776,142	2,944	4,986	3,104	.....	48,260	2,792	15,212	535,530	59,001	425,672	80	\$ 1,035,416			
1888	* 1,449	.....	98,752	761,346	2,856	1,719	4,567	.....	15,638	2,900	35,358	544,774	60,047	774,550	34	\$ 1,716,440			
1889	363,441	.....	37,360	579,201	2,890	4,600	3,941	.....	3,062	1,944	12,322	919,649	62,302	66,264	16	\$ 1,060,538			
1890	104,059	6	11,664	672,410	468	1,324	3,560	.....	29,971	587	7,638	690,049	60,979	136,479	53	\$ 894,146			
1891	162,346	.....	3,000	975,841	1,484	2,632	5,006	864	1,254	2,811	27,481	614,967	60,450	172,752	22	\$ 875,650			
1892	132,309	.....	276	628,898	276	3,779	6,763	7,544	2,811	69,916	21,120	790,454	61,517	11,309	91	\$ 1,182,353			
1893	326,432	.....	157,500	1,130,405	2,667	5,234	1,962	3,717	16,872	4,819	39,265	888,509	64,636	969,638	80	\$ 1,951,950			
Totals	1,679,406	32	7,073,620	5,524,243	13,075	20,124	28,903	12,125	16,007	202,641	158,337	4,983,934	428,933	88	50	\$ 9,716,536			
* Hemlock and spruce.																\$2,315,000	00		
† Sale, 1892.																1,227,665	63		
Balance																\$1,087,334	37		

TABLE 4 (c).—Continued.
ONTARIO.—Area and Amount of Cut.—(From Ontario Crown Lands Returns.)
Provincial Lands.

Years.	AREA COVERED BY LICENSES.		SAW-LOGS.				SQUARE TIMBER.				Boom and Dimension Timber.			
	Sq. Mls.	By Provincial Returns at \$3.	White Pine.		Other.		White Pine.		Red Pine.		Other.		Pieces.	Feet, B.M.
			Pieces.	Feet, B.M.	Pieces.	Feet, B.M.	Pieces.	Feet, cubic.	Pieces.	Feet, cubic.	Pieces.	Feet, cub.		
1887.....	15,850	19,401½	4,650,258	567,803,200	30,845	2,433,000	2,013,187	11,510	461,203	1,307	45,359	147,288	31,216,800	
1888.....	16,394	19,631½	6,364,650	689,581,000	36,684	2,862,000	2,923,332	11,486	433,256	1,033	86,425	228,524	41,177,000	
1889.....	17,226½	19,810½	6,802,308	725,727,633	44,801	3,668,113	4,659,756	10,890	400,114	399	13,257	159,932	32,000,237	
1890.....	13,555	19,365½	5,032,230	519,215,801	43,331	3,308,482	3,226,164	4,245	166,465	1,768	70,216	148,863	33,337,798	
1891.....	15,820	19,237	4,718,469	451,207,505	85,305	3,671,249	1,557,075	557	22,839	2,646	112,251	206,769	37,844,115	
1892.....	12,887	19,536½	6,424,475	606,190,122	110,415	5,599,354	3,841,853	428	17,466	1,991	74,472	229,150	* 42,237,750	
1893.....	17,244	20,559	7,291,439	718,215,271	142,109	8,095,124	1,867,340	940	40,983	¶ 1,361	50,229	21,244	+ 2,266,983	
Totals.....	169,516½	137,539½	41,283,829	4,287,940,632	493,490	29,637,322	20,088,706	40,056	1,542,326	10,505	404,209	1,272,199	245,108,978	
Average.....	15,645½	19,646½											+ 5,580	

* Pine.
+ Other timber.
¶ Ash, birch, elm, maple and oak, 491 pieces, 12,143 cubic feet; spruce, hemlock and tamarack, 870 pieces, 38,086 cubic feet. There was also 21,907 cubic feet of cedar, the number of pieces not being stated.

Forest wealth of Canada.

TABLE 4 (c).—Continued.
ONTARIO.—Area and Amount of cut, Provincial Lands—Continued.

Years.	MISCELLANEOUS.										RECEIPTS.				Total.
	Cedar.	Spars.	Pile Timber.	R.R. Ties.	Tele-graph Poles.	Rails, Traverses, &c.	Shingle, Boils.	Pulp wood.	Posts, Stave-bolts, &c.	Fire-wood, Tan-bark, &c.	Trespass and Interest.	Timber Dues.	Ground Rents.	Bonus.	
	Ft., lin.	Pcs.	Feet, B.M.	Pieces.	Pcs.	Pcs.	Cords.	Cords.	Cords.	Cords.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1887.....	386,240 + 1,449	26	6,765,244	776,142	2,944	4,986	3,104	.....	2,792	48,280	15,212 70	522,063 18	58,201 75	424,039 80	1,019,517 43
1888.....	363,441	.....	98,752	761,346	2,856	1,719	4,567	.....	2,200	15,698	35,356 14	823,775 08	58,893 83	769,990 34	1,688,015 39
1889.....	104,059	6	37,360	579,201	2,390	450	3,841	.....	1,644	3,062	12,232 10	902,043 07	59,430 50	66,058 16	1,039,763 83
1890.....	162,346	.....	11,664	672,410	468	1,324	3,660	.....	587	29,971	7,320 53	677,875 97	58,096 00	135,479 53	878,772 03
1891.....	132,309	.....	3,000	975,841	1,484	2,632	5,006	864	1,254	18,862	27,451 20	579,725 28	57,711 00	172,551 22	887,488 70
1892.....	326,432	.....	.....	628,698	276	3,779	6,763	.....	2,811	69,916	19,942 71	757,982 80	58,606 25	81,306 26	2,155,792 67
1893.....	203,120	.....	+ 187,560	1,130,405	2,667	5,234	1,962	3,717	4,319	16,872	38,975 36	838,680 03	61,678 00	958,538 60	1,897,871 99
Totals..	1,579,406	32	7,078,520	5,524,243	13,075	20,124	28,803	12,125	16,007	202,641	156,490 74	5,112,145 41	412,617 33	3,836,918 56	9,517,172 04

Total bonus \$ 2,315,000 00
 Paid same year 1,227,665 63
 Balance..... \$ 1,087,334 37

\$ Sale, 1892.

+ Hemlock and spruce, feet, lin.
 + Also head blocks, 85,120 feet.

TABLE 4 (c)—Continued.
 ONTARIO.—Area and Amount of Cut.—(From Department of Indian Affairs.)
Indian Lands and Reserves.

Years.	Area Under License.	SAW-LOGS.				SQUARE TIMBER.				ROOM and Dimension Timber.				AMOUNTS ACCRUED.			
		Pine.		Spruce.		White Pine.		Red Pine.		Pieces.	Feet.	Tree-pass.	Timber Dues.	Ground Rent.	Bonus.	Totals.	
		Pieces.	Ft., B. M.	Pieces.	Feet, B. M.	Pieces.	Cub. ft.	Pieces.	Cub. ft.								\$ cts.
1887.....	932.06	65,329	9,698,995	63	7,369	3,553	183,892	.....	.....	290	19,080	.....	13,487 15	799 35	1,633	15,899 50
1888.....	980.06	134,868	15,898,978	.....	.....	4,191	211,297	.....	.....	3,967	714,060	.....	22,711 38	1,153 35	4,560	28,424 73
1889.....	953.26	134,030	14,351,104	.....	.....	2,929	138,812	.....	.....	9,693	1,948,293	.....	17,606 03	2,872 05	206	20,774 45
1890.....	910.72	108,221	10,515,872	.....	.....	148	10,855	.....	.....	3,681	846,630	.....	12,173 83	2,883 05	.....	15,374 89
1891.....	861.47	257,913	26,176,611	.....	.....	152	6,466	.....	.....	1,131	206,973	.....	35,242 12	2,739 05	201	38,212 05
1892.....	863.77	245,664	20,232,303	.....	.....	403	15,930	.....	.....	5,560	984,120	.....	22,471 74	2,910 80	.....	26,560 40
1893.....	898.53	478,665	30,599,639	.....	.....	15,597	706,537	.....	.....	1,768	447,468	.....	49,823 24	2,958 90	1,100	54,118 74
Totals.....	6,439.87	1,424,690	127,410,502	27,965	1,588,422	12,594	659,590	.....	.....	26,090	5,166,624	.....	175,501 49	16,316 55	7,700	199,364 76
Average.	919.98	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Forest wealth of Canada.

TABLE 4 (c)—Continued.
QUEBEC.—Area and Amount of Cut.—(From Quebec Crown Lands Returns and Department of Indian Affairs.)
Total for Provincial and Indian Lands.

Years.	SAW-LOGS.										SQUARE TIMBER.										Boom Timber.											
	Area under License.					Pine.					Spruces, &c.					White Pine.					Red Pine.					Spruces, Birch, &c.					Pieces.	*Feet.
	Pieces.	Lin. ft.	Spars.	Railroad Ties.	Telegraph Poles.	Shingles.	Rails, Knees, Pickets, &c.	Pulp and Bobbin Wood.	Firewood.	Trespass, Interest, Fire tax, &c.	Timber Dues.	Ground Rent.	Bonus and Transfer Bonus.	Total Receipts.																		
1887	2,693,140	371,141,816	1,352,260	107,183,900	11,230	528,275	241	9,852	2,112	22,690	27,501	841,796																				
1888	2,406,361	330,680,303	1,963,804	76,396,318	9,378	415,283	3,426	105,830	5,025	159,192	14,572	482,291																				
1889	3,395,747	467,940,975	1,633,093	121,588,734	9,556	569,451	2,762	96,317	2,757	55,431	19,644	888,009																				
1890	2,846,861	395,086,976	1,337,640	104,703,944	41,504	1,989,522	4,440	162,269	2,207	67,428	24	647																				
1891	2,142,754	302,553,454	2,708,078	193,155,071	59,964	3,046,316	3,915	99,371	3,095	78,760	9,500	2,355,649																				
1892	2,302,276	377,397,063	2,596,606	153,234,313	9,964	755,198	592	20,087	5,310	166,567	5,378	803,082																				
1893	3,372,469	428,898,154	2,827,779	257,140,858	42,673	1,131,079	3,011	128,221	2,342	51,621	1,639	178,277																				
Totals...	19,159,628	2,673,308,741	13,419,260	1,021,403,038	284,248	8,375,124	18,387	621,947	22,848	601,689	78,867	.....																			
Average...	43,602																															

Years.	MISCELLANEOUS.										AMOUNTS ACCRUED.				
	Flat and Small Timber.	Spars.	Railroad Ties.	Telegraph Poles.	Shingles.	Rails, Knees, Pickets, &c.	Pulp and Bobbin Wood.	Firewood.	Trespass, Interest, Fire tax, &c.	Timber Dues.	Ground Rent.	Bonus and Transfer Bonus.	Total Receipts.		
1887	4,730	123,321	9,223	7,360	3,318	62,325	.....	13,406	12,427	44	90,689	3,898	582,950	
1888	16,811	828,442	.....	9,040	2,882	234,004	471	9,772	7,597	19	141,759	6,815	603,748	
1889	3,427	100,518	65	473,623	3,162	105,090	1,587	15,350	7,283	81	124,434	119,972	959,986		
1890	3,009	100,489	120	109,777	3,331	30,983	9,708	9,908	12,380	96	147,376	19,708	806,732		
1891	8,401	422,041	6,000	169,159	435	2,579	6,184	10,166	11,206	82	499,187	11,539	647,198		
1892	6,362	177,108	2,593	137,615	1,211	9,656	10,014	11,948	12,641	42	133,392	3,470	626,056		
1893	84,373	553,153	21	168,088	1,231	10,142	5,847	16,657	19,293	97	645,655	73,811	891,765		
Totals...	77,118	2,307,072	18,022	1,325,966	21,874	504,956	33,811	77,107	82,842	45	3,880,490	70,915	5,118,450		

* Boom timber, 1887-90, linear feet; 1891-92, feet, B. M. † Also 255 cords lath wood and 923 cords hemlock bark. ‡ Including arrears of ground rents overdue.

TABLE 4 (c)—Continued.
 QUEBEC—Area and Amount of Cut.—(From Quebec Crown Lands Returns and Department of Indian Affairs.)
Provincial Lands.

Years.	Area under License.	SAW-LOGS.										SQUARE TIMBER.				Boom Timber.
		Pine.		Spruce, &c.		White Pine.		Red Pine.		Spruce, Birch, &c.		Pieces.	* Feet.	Total Receipts.		
		Pieces.	Feet, B. M.	Pieces.	Feet, B. M.	Pieces.	Cub. feet.	Pieces.	Cub. feet.	Pieces.	Cub. feet.					
1887.	42,440	2,693,119	371,140,200	1,352,260	107,183,900	11,204	528,019	241	9,852	2,112	22,690	27,601	841,796			
1888.	41,584	2,391,098	323,518,600	963,392	76,361,000	9,378	415,283	3,426	105,880	5,025	159,192	14,569	482,191			
1889.	3,394,164	3,394,164	457,751,800	1,633,068	129,586,400	9,555	509,451	2,752	95,317	2,757	55,437	19,644	888,049			
1890.	44,201	2,804,337	392,024,600	1,324,872	103,429,200	41,504	1,989,522	4,440	162,269	2,207	67,428	24	647			
1891.	46,190	2,187,988	302,152,600	2,679,173	191,394,489	59,944	3,046,316	3,915	99,371	3,065	79,700	9,509	2,385,649			
1892.	42,965	2,287,814	376,970,400	2,525,008	149,083,075	9,866	753,875	592	20,087	5,310	166,567	5,874	802,482			
1893.	46,006	3,365,425	427,901,633	2,798,955	255,459,466	42,619	1,129,847	3,011	129,221	2,342	51,621	1,507	1,46,887			
Totals.	303,956	19,063,805	2,667,459,893	13,276,726	1,012,497,380	184,070	8,372,313	18,387	621,947	22,848	601,680	78,728	.....		
Average.	43,422															

Years.	MISCELLANEOUS.										RECEIPTS.			
	Flat and Small Timber.	Spars.	Railroad Ties.	Tele-graph Poles.	Shingles.	Rails, Knees, Pickets, &c.	Pulp and Robbin Wood.	Firewood.	Trespass, Fire tax, Interest, &c.	Timber Dues.	Ground Rents.	Bonus and Transfer Bonus.	Total Receipts.	
1887.	4,730	123,321	101,440	7,960	3,318	62,325	471	13,406	12,427	475,617	90,684	3,888	592,618	
1888.	16,811	828,442	166,814	9,040	2,882	234,004	471	9,772	7,597	447,200	141,549	2,315	598,668	
1889.	3,427	100,518	473,623	1,962	3,152	105,090	1,587	15,350	7,293	707,357	124,314	119,972	998,638	
1890.	3,009	100,489	120	65	3,331	30,883	9,708	9,808	12,380	626,753	66,147	19,708	806,051	
1891.	8,401	422,041	169,159	435	2,579	6,184	10,166	11,185	11,858	498,370	30,125	11,539	646,237	
1892.	6,382	177,108	137,615	1,211	4,237	9,656	10,014	11,948	12,641	474,900	79,132	3,470	623,997	
1893.	34,378	555,153	168,038	1,231	10,142	21,633	5,847	+6,657	19,293	642,932	63,152	73,811	888,722	
Totals.	77,118	2,307,072	1,325,966	21,874	29,641	504,956	33,811	77,107	83,821	3,873,152	85,914	234,706	5,105,228	

* Boom timber, 1887-90, linear feet; 1891-93, feet B. M. † Also 255 cords lathwood and 929 cords hemlock bark. ‡ Including arrears of ground rents overdue.

TABLE 4 (c)—Continued.
 NEW BRUNSWICK.—Area and Amount of Cut.—(From N.B. Crown Lands Returns and Department of Indian Affairs.)
Total for Provincial and Indian Lands.

Years.	Area under License.	SAW-LOGS.						TIMBER.				Boom Poles.
		Pine and Spruce.	Hemlock.	Cedar.	Hackmatack.	Hardwood.	Pine.	Spruce.	Hardwood.	Pieces.		
1887.....	Sq. miles.	Sup. ft.	Sup. ft.	Sup. ft.	Sup. ft.	Sup. ft.	Cub. ft.	Cub. ft.	Cub. ft.	Pieces.		
1888.....	4,217½	64,412,319	3,567,415	1,525,076	106,150	3,693	6,890	7,332	2,680			
1889.....	4,622½	68,625,132	13,101,707	2,997,752	351,168	6,480	4,650	12,009	5,050			
1890.....	4,778½	79,287,013	17,594,206	4,063,549	749,740	2,720	6,720	9,614	5,250			
1891.....	4,566	95,683,626	12,227,023	4,746,681	390,462	.....	2,040	14,778	7,375		
1892.....	4,408½	66,500,402	12,799,030	5,040,723	221,280	.....	.....	21,480	17,178	
1893.....	4,419	79,706,842	2,146,874	12,039,918	16,090	.....	.....	33,188	14,204	
.....	5,690	87,075,187	7,252,896	13,951,563	.....	.....	.....	10,898	13,180	
Totals.....	32,702	541,270,521	68,689,131	44,365,262	16,090	5,365,855	20,210	109,299	62,917			
Average.....	4,671½	.....	.....	.....	.....	.....	.....	.....	.....

Years.	MISCELLANEOUS.										RECEIPTS.		
	*Spool Wood.	Railroad T. es.	Telegraph Poles.	Shingles.	Posts and Rails, Knees, &c.	Rafting P. ns, &c.	Firewood, Tanbark, &c.	Timber Dues and Stumpage.	Rents, Sales and Renewals.	Total Receipts.			
1887.....	Sup. ft.	Pieces.	Pieces.	M.	Pieces.	M.	Cords.	\$ c.s.	\$ cts.	\$	cts.		
1888.....	.....	63,462	2,190	9,322	28,087	80	1,399	87,670 11	21,398 10	109,068 21		
1889.....	.....	103,050	3,495	4,466	68,662	285	2,168	98,568 53	23,612 50	122,181 03		
1890.....	.....	61,808	4,544	632	25,841	.....	2,515	113,322 60	22,217 13	135,539 73		
1891.....	.....	79,498	3,253	615	22,537	63	1,614	111,031 07	19,499 00	130,530 07		
1892.....	.....	80,626	1,935	780	27,267	105	1,847	81,830 08	19,388 50	101,218 58		
1893.....	.....	103,672	3,805	390	14,522	101	2,913	96,553 52	18,913 83	115,467 35		
.....	1,196,400	135,513	2,359	625	15,779	75	946	+106,507 08	+89,900 00	196,407 13			
Totals.....	1,196,400	627,619	21,561	16,830	202,705	659	13,407	695,482 99	214,929 06	910,412 10			

* White birch. † \$100 is included for trespass on Indian lands. ‡ This great increase was owing to the extension of the terms of leases from 10 to 25 years, and the consequent advances on the upset price at the sales of 1893, when there was also an increase in the number of berths sold.

Forest wealth of Canada.

TABLE 4 (c)—Continued.
NEW BRUNSWICK.—Area and Amount of Cut.—(From New Brunswick Crown Lands Returns.)
Provincial Lands.

Years.	Area under License.	Pine and Spruce Logs.	Hemlock Logs.	Hackmatack Logs.	Cedar Logs.	Hardwood Logs.	Boom Poles.	Pine Timber.	Spruce Timber.	Hardwood Timber.
	Sq. miles.	Sup. feet.	Sup. feet.	Sup. feet.	Sup. feet.	Sup. feet.	Pieces.	Cub. ft.	Cub. ft.	Cub. feet.
1887.	4,200½	64,300,098	3,567,445	.....	1,525,076	106,150	2,680	3,693	6,800	7,382
1888.	4,605½	68,362,300	13,054,434	.....	2,964,564	351,168	3,050	6,480	4,650	12,060
1889.	4,76½	79,287,013	17,594,206	.....	4,063,549	749,740	5,250	2,720	6,720	9,614
1890.	4,549	95,539,612	12,133,048	.....	4,716,201	390,462	7,375	.....	2,040	14,778
1891.	4,391½	66,355,301	12,777,830	.....	5,029,723	221,280	17,178	.....	.....	21,480
1892.	4,402	79,495,134	1,526,554	.....	12,034,758	1,668,130	14,204	.....	.....	33,188
1893.	5,673	86,869,334	7,015,471	.....	13,950,423	1,378,945	13,180	3,752	.....	10,898
Totals.	32,583	540,168,792	67,674,988	16,090	44,284,294	5,365,855	62,917	19,149	20,210	109,239
Average	4,654½	.....	.....	.....	.....	.....	.....	.....	.....	.....

Years.	Spool Wood.	Railroad Ties.	Telegraph Poles, &c.	Shingles.	Poets, Rails, Knees, &c.	Rafting Pins, &c.	Firewood, Tanbark, &c.	Stumpage.	Sales and Renewals of Timber Licenses.	Totals.
	Sup. feet.	Pieces.	Pieces.	M.	Pieces.	M.	Cords.	\$ cts.	\$ cts.	\$ cts.
1887.	63,462	2,190	9,322	28,097	80	1,399	87,557 89	21,258 10	108,815 99
1888.	103,050	3,495	4,466	68,662	235	2,168	98,217 21	23,472 50	121,689 71
1889.	61,808	4,544	632	25,841	.....	2,515	113,322 60	22,147 13	135,469 73
1890.	79,488	3,233	615	22,537	63	1,614	110,897 08	19,429 00	130,326 08
1891.	80,626	1,935	780	27,267	105	1,847	81,725 84	19,318 50	101,044 34
1892.	103,672	3,805	380	14,522	101	2,918	96,153 52	18,843 83	114,997 35
1893.	135,513	2,369	625	15,779	75	946	106,739 59	*89,830 00	195,569 59
Totals	1,196,400	627,619	21,561	16,880	202,705	659	13,407	693,613 73	214,299 06	907,912 79

*This great advance was owing to the extension of the terms of leases from 10 to 25 years, and the consequent advances on the upset price at the sales of 1893 when there was also an increase in the number of berths sold. †White birch.

TABLE 4 (c)—Continued.
NEW BRUNSWICK.—Area and Amount of Cut.—(From Department of Indian Affairs.)
Indian Lands and Reserves.

Years.	Area under License.	Pine Logs.	Spruce Logs.	Hemlock Logs.	Cedar Logs.	AMOUNTS ACCRUED.			
						Timber Dues.	Ground Rent.	Totals.	
1887	Sq. miles.	Sup. feet.	Sup. feet.	Sup. feet.	Sup. feet.	\$	cts.	\$	cts.
1888	17	112,221	112,221	47,273	33,188	112 22	140	252 22	491 32
1889	17	242,832	242,832	87,975	30,480	351 32	140	491 32	70 00
1890	17	77,247	46,767	21,200	11,000	133 99	70	203 99	174 24
1891	17	145,101	21,708	620,270	5,150	100 40	70	174 24	470 00
1892	17	211,708	265,853	237,425	1,140	1767 54	70	470 00	837 54
1893	17	1,024,482	1,024,482	1,014,143	80,968	1,869 31	630	2,499 31	
Totals	119								
Average	17								

MANITOBA AND TERRITORIES.—Area and Amount of Cut.—(From Department of Interior Returns.)
Dominion Lands, Department of Interior.

Year.	Area under Lease.	Lumber, Quantity Manufactured.	R.R. Ties.	Shingles	Laths	Poles, Posts, &c.	Kinds of Timber.	RECEIPTS.				Total.	
								Trespasses, &c.	Royalty and Permits.	Ground Rents.	Bonus.		Timber from School Lands.
1887	Sq. mls	Feet B.M.	Pieces.	M.	M.	Pes.	Chiefly spruce.	\$	cts.	\$	cts.	\$	cts.
1888	2,066	25,208,209	7,610	2,698	2,487	342	do	5,850 18	40,292 80	1,733 50	1,604 46	64,407 83	
1889	2,036	24,879,935	62,069	6,242	2,487	301	do	4,973 92	41,688 59	1,325 25	310 15	65,966 85	
1890	2,247	16,279,826	452,764	1,777	727	2,375	do	5,490 39	35,081 92	3,024 20	868 14	59,309 50	
1891	2,164	17,058,963	99,098	1,450	371	430	do	2,802 67	30,686 40	6,794 66	918 18	57,183 44	
1892	2,262	22,023,091	97,403	4,277	1,027	2,696	do	3,245 51	41,439 91	3,070 75	277 91	58,611 73	
1893	2,132	20,610,648	9,069	1,195	2,696	11,829	do	6,247 74	41,873 24	2,428 10	335 21	68,421 82	
1893	2,280	22,015,730	9,069	1,747	456	3,635	do	3,875 73	36,726 21	8,601 95	903 30	66,847 90	
Totals	15,136	148,076,402	728,033	26,692	8,961	6,165		32,486 14	267,789 16	26,978 41	5,218 35	440,749 07	
Average	2,162												

* Round timber. † \$100 is included for trespass.

Forest wealth of Canada.

TABLE 4 (c)—Continued.
BRITISH COLUMBIA.—Area and Amount of Cut.—(From B. C. Crown Lands Returns, Departments of Interior and Indian Affairs.)
Total for Provincial, Dominion and Indian Lands.

Years.	Area under Lease.	Quantity of Lumber Manufactured.	Ties.	Shingles.	Trespass, Interest, &c.	Timber Dues, Royalties, &c.	Ground Rents and Licenses.	Bonus.	Total Receipts.
1887.....	Sq. miles. 18 56	Feet, B. M. 7,144,868	Pieces. 137	M. 137	\$ cts. 1,817 91	\$ cts. 3,723 76	\$ cts. 1,531 85	\$ cts. 8,067 95	\$ cts. 15,141 47
1888.....	239 12	56,305,279	.....	.....	14,645 85	20,214 40	6,211 18	2,682 50	43,783 93
1889.....	330 29	66,311,164	.....	.....	233 90	33,481 42	11,445 76	4,092 50	49,252 98
1890.....	404 50	95,860,913	.....	.....	98 13	62,073 26	20,635 08	11,131 25	93,837 72
1891.....	608 59	113,613,057	10,119	520	120 28	56,303 61	24,199 97	19,275 02	99,898 86
1892.....	847 07	84,392,536	.....	1,000	183 52	54,073 33	40,542 91	2,626 50	97,426 26
1893.....	1,172 25	76,851,963	.....	940	583 23	54,997 86	48,665 90	4,693 25	108,940 25
Totals	3,620 41	502,479,780	10,119	2,597	17,682 20	284,897 64	153,232 65	52,568 97	508,381 47
Average	517 20	.....	.....	.....	.....	.....	.....	.....	.....

BRITISH COLUMBIA.—Area and Amount of Cut.—(From B. C. Crown Lands Returns.)
Provincial Lands.

Years.	Area under Lease.	Quantity Manufactured.	Royalty.	Rental.	Licenses.	Total Receipts.
1887.....	Sq. miles. 211	Feet, B. M. 31,968,384	\$ cts. 12,675 69	\$ cts. 5,540 83	\$ cts.	\$ cts. 18,216 42
1888.....	280	42,551,222	21,227 28	9,956 93	.....	31,184 21
1889.....	352 4	79,177,056	29,677 71	15,614 03	.....	45,291 74
1890.....	427 4	83,108,335	31,479 06	20,404 23	.....	51,883 29
1891.....	603 4	64,186,820	32,093 41	31,673 63	2,600 00	66,367 04
1892.....	770 4	60,087,300	30,293 68	42,737 68	2,950 00	75,981 36
Totals	2,650 4	361,479,116	157,446 73	125,927 33	5,550 00	288,924 06
Average	441 4	.....	.....	.....	.....	.....

* No Provincial Returns of lumber for 1887. † Rebate of royalty on timber exported, \$3,051.40.

TABLE 4 (c)—Continued.
 BRITISH COLUMBIA.—Area and Amount of Cut.—(From Department of Interior Returns.)
Dominion Lands.

Years.	Area under Lease. Sq. miles.	Quantity of Lumber Manufactured. Feet, B.M.	Ties. Pieces.	Shingles. M.	Kind of Timber.	RECEIPTS.					Totals. \$ cts.
						Trespass, Interest, &c. \$ cts.	Timber Dues and Permits. \$ cts.	Ground Rents. \$ cts.	Bonus. \$ cts.	Totals. \$ cts.	
1887.....	18.56	7,144,868	.....	137	Douglas fir, spruce and cedar.	1,817 91	3,723 76	1,531 85	8,067 95	15,141 47
1888.....	27.62	24,436,895	.....	.....	do	14,645 85	7,568 81	670 35	2,682 50	25,567 51
1889.....	41.79	23,759,942	.....	.....	do	233 30	12,254 14	1,464 83	4,092 50	18,044 77
1890.....	43.50	13,546,943	.....	.....	do	98 13	23,258 66	4,997 05	11,131 25	45,485 09
1891.....	172.84	30,507,439	10,119	520	do	120 26	22,827 23	3,771 74	19,275 02	45,994 31	
1892.....	243.32	20,062,680	.....	1,000	do	183 52	21,836 92	6,269 28	2,626 50	30,916 22
1893.....	388.75	16,086,067	.....	940	do	583 23	24,525 60	2,978 22	4,693 25	32,780 30
Totals.....	936.38	135,544,834	10,119	2,597		17,682 20	121,995 18	21,683 32	52,568 97	213,929 67	
Average.....	133.77										

Forest wealth of Canada.

TABLE 4 (c)—Continued.
BRITISH COLUMBIA.—Area and Amount of Cut.—(From Department of Indian Affairs.)
Indian Lands and Reserves.

Years.	Area under Lease. Sq. miles.	Quantity Manufactured. Ft., B.M.	AMOUNTS ACCRUED.			Totals. \$ cts.
			Timber Dues. \$ cts.	Ground Rents. \$ cts.		
1887.....						
1888.....	1					
1889.....	87			24 00		24 00
1890.....	87	3,136,915	3,136 89	24 00		3,160 89
1891.....	87	1,997,283	1,997 26	24 00		2,021 26
1892.....	5	143,036	143 00			143 00
1893.....	8	178,596	178 59			178 59
Totals.....	341	5,455,830	5,455 74	72 00		5,527 74
Average—6 years.....	57					

1887 to 1893	}	No Indian Lands or Reserves under Timber Licenses.
	{	
	{	Nova Scotia. Prince Edward Island. Manitoba. The Territories.

TABLE 4 (c)—Continued.
ONTARIO—Pine Saw-logs by Districts.—(From Ontario Crown Lands Returns.)

Timber Districts.	1887.		1888.		1889.		1890.	
	Pieces.	Feet, B. M.	Pieces.	Feet, B. M.	Pieces.	Feet, B. M.	Pieces.	Feet, B. M.
Ottawa.....	2,072,349	268,153,000	2,554,528	302,247,200	1,982,827	237,664,827	1,568,144	193,338,688
Belleville.....	804,675	90,432,000	1,481,498	136,549,000	1,418,946	123,272,526	583,456	57,245,005
Western.....	1,773,234	209,198,200	2,328,624	260,784,800	3,400,484	364,790,280	2,880,630	268,632,108
Totals.....	4,650,258	567,803,200	6,364,650	699,581,000	6,802,308	725,727,633	5,032,230	519,215,801
Timber Districts.								
	1891.		1892.		1893.			
	Pieces.	Feet, B. M.	Pieces.	Feet, B. M.	Pieces.	Feet, B. M.	Pieces.	Feet, B. M.
Ottawa.....	910,862	109,613,459	1,113,035	125,471,239	1,127,453	109,779,211	1,127,453	109,779,211
Belleville.....	520,468	52,258,143	670,704	69,649,772	710,597	80,354,372	710,597	80,354,372
Western.....	3,287,139	289,336,903	4,604,646	411,009,111	5,453,389	528,081,688	5,453,389	528,081,688
Totals.....	4,718,469	451,207,505	6,424,475	606,190,122	7,291,439	718,215,271	7,291,439	718,215,271

Forest wealth of Canada.

TABLE 4 (c)—Concluded.
 QUEBEC—Pine by Districts.—(From Quebec Crown Lands Returns.)

Districts.	1887.				1888.				1889.							
	Saw-logs.		Square Timber.		Saw-logs.		Square Timber.		Saw-logs.		Square Timber.					
	Pieces.	Ft., B. M.	Pieces.	Cub. ft.	Pieces.	Ft., B. M.	Pieces.	Cub. ft.	Pieces.	Ft., B. M.	Pieces.	Cub. ft.				
Upper Ottawa.....	2,137,016	10,979	1,965,918	522,890	12,441	2,863,998	516,915	2,863,998	10,780	3,394,164	10,780	548,617				
Lower do.....	298,494	102	299,000	2,063	4	364,470	80	364,470	1,523	54,582	1,523	55,394				
St. Maurice.....	194,167	48	89,237	1,347	359	111,114	4,218	111,114	14	757	14	757				
All other.....	63,442	182	36,941	5,114	12,804	54,582	4,218	54,582	14	757	14	757				
Total.....	2,693,119	11,311	2,391,096	531,444	12,804	3,394,164	521,113	3,394,164	12,317	604,768	12,317	604,768				
Districts.	1890.				1891.				1892.				1893.			
	Saw-logs.		Square Timber.		Saw-logs.		Square Timber.		Saw-logs.		Square Timber.		Saw-logs.		Square Timber.	
	Pieces.	Ft., B. M.	Pieces.	Cub. ft.	Pieces.	Ft., B. M.	Pieces.	Cub. ft.	Pieces.	Ft., B. M.	Pieces.	Cub. ft.	Pieces.	Ft., B. M.	Pieces.	Cub. ft.
Upper Ottawa.....	2,434,731	338,588,800	44,291	2,115,043	1,657,816	289,374,800	335,053	48,717,600	60,617	3,145,687	60,617	2,954,491	2,804,337	392,024,600	45,944	2,151,791
Lower do.....	196,286	37,945,200	639	23,921	3,335,053	8,224,800	73,177	5,835,400	3,194	1,863	3,194	189,343	2,297,814	376,970,400	10,458	773,962
St. Maurice.....	104,041	10,688,000	202	4,973	71,892	71,892	71,892	71,892	48	1,863	48	1,863	2,297,814	376,970,400	10,458	773,962
All other.....	69,279	6,802,600	812	7,854	2,137,938	302,152,600	2,137,938	302,152,600	63,859	3,145,687	63,859	3,145,687	2,297,814	376,970,400	10,458	773,962
Total.....	2,804,337	392,024,600	45,944	2,151,791	2,137,938	302,152,600	2,137,938	302,152,600	63,859	3,145,687	63,859	3,145,687	2,297,814	376,970,400	10,458	773,962
Districts.	1892.				1893.				1894.				1895.			
	Saw-logs.		Square Timber.		Saw-logs.		Square Timber.		Saw-logs.		Square Timber.		Saw-logs.		Square Timber.	
	Pieces.	Ft., B. M.	Pieces.	Cub. ft.	Pieces.	Ft., B. M.	Pieces.	Cub. ft.	Pieces.	Ft., B. M.	Pieces.	Cub. ft.	Pieces.	Ft., B. M.	Pieces.	Cub. ft.
Upper Ottawa.....	1,577,034	313,494,400	7,882	645,189	2,788,132	357,061,600	2,788,132	357,061,600	43,464	1,122,961	43,464	1,122,961	2,297,814	376,970,400	10,458	773,962
Lower do.....	451,538	45,935,400	2,572	128,574	260,598	49,015,000	260,598	49,015,000	2,160	135,995	2,160	135,995	2,297,814	376,970,400	10,458	773,962
St. Maurice.....	190,220	11,659,600	.....	87,775	87,775	8,418,600	87,775	8,418,600	.....	.....	.....	.....	2,297,814	376,970,400	10,458	773,962
All other.....	79,022	5,921,000	.....	199	76,451	5,521,600	76,451	5,521,600	6	212	6	212	2,297,814	376,970,400	10,458	773,962
Total.....	2,297,814	376,970,400	10,458	773,962	3,212,956	420,016,900	3,212,956	420,016,900	46,630	1,259,068	46,630	1,259,068	2,297,814	376,970,400	10,458	773,962

* For 1887-89 only the number of saw-logs is returned without the measurement.

TABLE

From Culler's

STATEMENT of Timber, &c., Measured at the Ports of

Description.	1865.		1870.		1875.		1880.	
	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.
<i>Waney Timber.</i>								
1 White pine.....	15,582	31,177·29	39,142	54,714·21	31,514	44,914·14	29,246	44,670·37
2 Red pine.....	1	35	14	40·39	228	541·17	99	99·25
3 Spruce.....			8	10·30	1,205	1,333·20	484	456·05
4 Ash.....					1,427	2,167·07		
5 Balm of gilead.....			15	18·35	355	396·35		
6 Basswood.....					1	1·00		
7 Beech.....	2	2·10	13	9·06	1,511	1,274·34	2	1·33
8 Birch.....	3	4·13	25	32·04	71	72·06	2	1·39
9 Butternut.....					41	71·23		
10 Buttonwood.....	259	245·39	151	141·06	2,092	1,436·24	163	108·16
12 Chestnut.....					6	5·29		
13 Cottonwood.....								
14 Elm.....								
15 Hemlock.....					3	1·27		
16 Hickory.....	4	8·34	137	108·13			1	1·15
17 Maple.....	8	9·27			429	493·30	16	28·13
18 Mixed.....					2,739	5,012·04		
19 Oak.....			401	301·23	43	30·26	1	39
20 Sycamore.....					4	4·05		
21 Tamarack.....								
22 Walnut.....	1,775	1,847·18	7,067	6,413·14	1,756	1,444·09	1,566	1,180·31
23 Whitewood.....	22	32·02	11	29·26	1,384	2,756·12	10	11·03
	17,656	33,329·07	46,984	61,820·17	44,809	61,958·02	31,590	46,556·16
<i>Square Timber.</i>								
1 White pine.....	302,285	498,140·09	290,778	399,991·37	154,426	208,926·11	50,385	69,731·26
2 Red pine.....	121,583	130,408·29	70,549	68,845·14	100,889	94,606·19	23,678	23,159·02
3 Spruce.....	135	131·23	52	39·24	246	244·05	1	1·19
4 Ash.....	3,234	3,503·17	7,609	8,123·29	26,845	21,689·10	3,395	2,158·15
5 Balm of gilead.....	4	4·17			5	2·37		
6 Balsam.....			9	8·18				
7 Basswood.....	237	306·12	416	435·22	1,261	1,188·02	13	16·01
8 Beech.....	18	15·31	38	28·02	88	78·25	4	3·18
9 Birch.....	13,816	6,950·28	23,018	9,981·09	8,495	3,924·02	27,859	13,067·33
10 Butternut.....	58	72·38	54	39·08	107	56·32		
11 Cedar.....					7,903	7,599·23		
12 Cherry.....	32	36·06	43	32·23	25	25·14	2	3·39
13 Elm.....	19,694	25,168·07	40,235	43,886·32	56,815	60,107·07	10,328	11,705·05
14 Hemlock.....	4,387	4,611·27	3,822	4,012·03	8,651	7,619·21	661	911·21
15 Hickory.....	537	612·16	1,013	1,574·08	4,008	4,326·25	302	327·12
16 Ironwood.....					2	1·11		
17 Maple.....	418	383·37	170	165·12	763	586·28	34	36·06
18 Mixed hardwood.....					450	301·10		
19 do timber.....	439	305·12						
20 Oak.....	42,541	70,195·39	33,031	50,455·21	59,722	81,526·18	16,996	26,941·01
21 Tamarack.....	21,834	14,719·36	11,925	7,688·29	17,962	9,193·30	2,278	1,303·09
22 Walnut.....	56	34·11	10	14·21	93	75·14		
23 Whitewood.....	47	160·35	77	134·15	95	144·25		
	531,355	755,762·30	482,849	595,457·07	448,851	502,229·09	135,936	142,366·07

Forest wealth of Canada.

5 (a).

Returns.

Quebec, Montreal, Lachine, Sorel and Three Rivers.

1885.		1890.		1891.		1892.		1893.		
Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	
35,660	50,729 20	61,296	89,884 34	85,545	127,493 18	34,792	52,546 33	35,420	51,566 10	1
1	26			51	106 06	10	17 30	1	1 23	2
13,045	10,416 22	2,839	2,433 04	4,708	3,850 11	4,751	3,418 35	24	18 15	3
3	3 19			1	38	2	1 19	6	8 06	4
118	130 28	55	43 19			3	3 16	5	5 10	5
4	4 11									6
395	284 31	393	253 24	1,293	980 18	7,779	3,372 38	5,491	2,865 16	7
39	37 15	28	23 00	100	53 32	110	74 19	12	11 01	8
										9
264	139 06	207	88 27	273	118 35	354	119 31	89	40 08	10
150	119 20			88	86 22	131	122 31	261	240 15	11
										12
42	51 30	34	39 30	1	2 10			85	81 13	13
76	91 32									14
931	360 02	403	204 27	142	78 05	11	13 35	667	415 24	15
100	107 23	439	488 28	541	616 38	199	207 16	161	210 09	16
										17
7	7 32	339	554 08	90	172 21	104	84 02	8	11 19	18
11	16 35			22	22 38					19
62	38 20	222	163 01	7	7 18	22	17 23			20
2,305	1,379 15	2,301	1,259 20	182	108 14	515	276 04	74	44 31	21
212	325 05	270	286 38	411	503 05	197	327 33	289	491 01	22
										23
53,425	64,244 32	68,826	95,723 20	93,456	134,202 17	48,990	60,515 33	42,593	55,951 01	
70,134	93,782 23	76,994	85,769 04	86,156	95,513 07	27,855	32,347 21	47,452	51,859 13	1
8,424	8,076 30	14,895	14,418 36	8,741	8,275 32	927	968 01	9,982	9,872 24	2
837	739 00			51	16 36	2	1 07	4	2 39	3
1,059	667 25	382	227 18	253	178 09	202	115 19	116	65 13	4
		1	1 16	2	2 04					5
										6
21	15 02	28	26 25	3	3 01					7
2	1 12									8
16,439	6,849 39	16,853	6,777 13	10,396	3,960 31	11,721	5,305 33	6,926	2,961 20	9
24	24 06			1	17					10
2,454	1,870 15	6,777	4,641 27	2,898	1,985 05	1,772	1,264 00	814	494 23	11
		2	1 28			9	4 22			12
15,355	17,544 17	12,119	14,805 28	16,350	19,773 04	10,847	18,090 38	11,632	13,423 20	13
2,181	1,638 03	425	297 31	8,192	5,101 09	465	280 11			14
324	361 12	140	154 37	412	416 35	379	389 28	533	549 12	15
										16
161	95 21	34	16 10	26	15 09			9	10 33	17
										18
										19
17,683	28,597 34	20,398	32,979 30	19,362	32,425 14	10,372	17,726 22	15,998	26,613 32	20
346	160 19	265	187 35	225	178 35	32	19 32	32	24 19	21
				4	5 04					22
		2	2 09	11	14 02			1	2 37	23
135,444	160,424 18	149,315	160,308 27	153,083	187,865 08	64,583	71,513 34	93,469	105,881 05	

TABLE

STATEMENT of Timber, &c., Measured at the Ports of Quebec,

Description.	1865.		1870.		1875.		1880.	
	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons 40 ft.
<i>Flatted Timber.</i>								
1 White pine.....	10,710	8,648 28			7,498	6,404 15	2,445	2,043 34
2 Red pine.....	405	386 01						
3 Spruce.....	4	4 11			572	436 35	58	52 02
4 Ash.....	332	247 16			751	587 36	36	29 27
5 Basswood.....	66	42 08						
6 Birch.....	30	25 14			62	42 20	15	12 02
7 Cedar.....	7,647	6,662 20						
8 Elm.....	888	744 21			310	290 16	1	0 38
9 Hemlock.....	8	5 33			3,541	2,863 13		
10 Maple.....					112	132 37		
11 Mixed.....	68	46 00	29,613	25,069 06			90	51 12
12 Oak.....	630	418 13						
13 Sleepers.....								
14 Tamarack.....	5,614	5,011 22			2,053	1,750 24	649	446 19
	26,402	22,242 27	29,613	25,069 06	14,899	12,508 36	3,294	2,636 14
<i>Round Timber.</i>								
1 White pine.....	25,563	7,668 36						
2 Spruce.....								
3 Spruce poles.....					5,576	8,343 33		
4 Elm.....							176	155 29
5 Hemlock.....								
6 Maple.....								
7 Mixed.....					238	161 28		
8 Oak.....							1	38
9 Saw-logs.....			3,534	1,229 00	172	82 27		
10 Tamarack.....								
	26,563	7,668 36	3,534	1,229 00	5,936	8,588 08	177	156 27
<i>Lumber.</i>								
1 Deals, pine.....	3,145,532	212,013 00	3,714,951	249,161 09	5,746,503	367,711 38	2,362,652	151,412 06
2 do red pine.....			4,844	313 04				
3 do spruce.....	761,824	42,432 06	1,113,850	61,708 38	2,270,721	127,086 25	714,498	40,711 07
4 do pine and spruce.....								
5 do not specif'd					2,691	154 07		
6 Planks, pine.....	208,051	9,535 28	296,343	13,582 17	394,664	18,088 30	46,874	2,148 15
7 do spruce.....	84,083	3,851 14	105,036	4,814 09	337,387	15,463 24	59,968	2,749 20
8 do ash.....	667	30 24						
9 do oak.....	5,742	296 28					883	11 07
10 do walnut.....	551	25 11						
11 Boards, pine.....	46,736	2,142 03	130,126	5,964 07			72,937	3,342 39
12 do oak.....	14,037	643 15						
13 do walnut.....	5,796	265 26						
14 do not specif'd			177,375	21,987 18	269,010	12,055 25	109,298	5,009 21
15 Oak wainscot.....	846	197 30						
16 Oak scantling.....					5,914	608 23		
17 Oars.....			23,409	5,500 00				
18 Sawn lumber for export.....					965,205	24,130 05	696,967	17,424 07
19 Sidings.....								
	4,273,865	271,433 25	5,565,934	363,031 22	9,992,095	565,299 17	4,064,077	222,809 02

Forest wealth of Canada.

5 (a).—Continued.

Montreal, Lachine, Sorel and Three Rivers.—Continued.

1885.		1890.		1891.		1892.		1893.		
Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	
4,257	3,787·35	12,712	7,644·11	4,791	3,336·12	2,067	1,379·19	997	638·28	1
81	58·04									2
										3
										4
										5
										6
										7
468	374·09	3,020	2,378·14	2,432	1,497·00					8
5	2·39									9
1,230	641·05			8,447	3,754·23					10
										11
1,238	571·15									12
2,952	2,229·05	3,443	1,949·32	4,815	2,901·18	2,635	1,400·17	5,800	3,087·19	13
										14
10,231	7,664·32	19,175	11,972·17	20,485	11,489·13	4,702	2,779·36	6,797	3,726·00	
3,899	3,356·24	142	125·27	3,910	3,138·16	331	218·08	5,708	4,705·12	1
563	568·02									2
										3
										4
657	689·14	1,290	920·28	5,896	4,537·22	1,173	783·33			5
								30	33·30	6
										7
										8
330	109·32									9
159	132·12							2,385	1,553·19	10
5,608	4,856·04	1,432	1,046·15	9,806	7,675·38	1,504	1,002·01	8,123	6,292·21	
3,587,805	214,959·30	35,000	2,005·08			6,850	392·18	17,900	1,025·21	1
1,023,261	58,444·24	75,348	4,055·30			3,546	197·14	18,000	1,031·10	2
										3
						3,920	230·26			4
104,558	4,792·13					7,300	418·09			5
19,878	911·02									6
										7
										8
										9
95,077	4,244·22									10
										11
										12
577,981	16,448·04									13
										14
										15
										16
										17
1,400,620	35,230·16									18
40,000	2,151·23									19
6,849,180	337,232·14	110,348	6,060·38			21,616	1,238·27	35,900	2,056·31	

TABLE
STATEMENT of Timber, &c., Measured at the Ports of Quebec,

Description.	1865.		1870.		1875.		1880.	
	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.
<i>Spars and Masts.</i>								
1 Masts, white pine	1,039	7,013·10	56	378·00				
2 do not specified					163	1,100·10		
3 Spars, red pine..	6,767	10,150·20	331	496·20			23	34·20
4 do spruce...	53	108·26	4	8·08				
5 do tamarack	3	6·36						
6 do not specified	365	375·11			426	852·00	683	1,350·16
	8,227	17,654·23	391	882·28	589	1,952·10	706	1,384·36
<i>Staves & Laths.</i>								
1 Staves, standard	1,934	16,588·29	1,266	10,855·00	1,479	12,683·11	147	1,261·06
2 do West India	1,425	12,223·08	3,485	29,883·08	563	4,832·25	127	1,091·14
3 do barrel...	3	22·12	7	57·09	3	24·12		
4 Lathwood(cords)	3,609	11,548·00	1,263	4,141·16	1,113	3,560·00	107	340·30
	6,971	40,382·09	6,021	44,836·33	3,158	21,100·08	381	2,693·10

RECAPITU

1 Waney timber..	17,656	33,329·07	46,984	61,820·17	44,809	61,958·02	31,590	46,556·16
2 Square timber..	531,355	755,762·30	482,849	595,457·07	448,851	502,229·09	135,936	149,366·07
3 Flatted timber..	26,402	22,242·27	29,613	25,069·06	14,899	12,508·36	3,294	2,636·14
4 Round timber..	25,563	7,668·36	3,534	1,229·00	5,986	8,588·08	177	156·27
5 Lumber*..	4,273,865	271,433·25	5,565,934	363,031·22	9,992,095	565,299·17	4,064,077	222,809·02
6 Spars and masts	8,227	17,654·23	391	882·28	589	1,952·10	706	1,384·36
7 Staves and laths	6,971	40,382·09	6,021	44,836·33	3,158	21,100·08	381	2,693·10
Totals....	4,890,039	1,148,473·37	6,135,326	1,092,326·33	10,510,387	1,173,636·10	4,236,161	425,602·34

* See Act, Cap. 18, 1889.—Measurements not compulsory for lumber.

TABLE
AVERAGE contents of Saw-logs and Square
Province of Ontario—From Provincial Returns.

Years.	SAW-LOGS.		SQUARE TIMBER.		
	Pine.	Other.	White Pine.	Red Pine.	Other.
	Feet, B.M.	Feet, B.M.	Cubic feet.	Cubic feet.	Cubic feet.
1887	122½	79	53	40	34½
1888	119	78	55	37½	37½
1889	106½	81½	53½	36½	33½
1890	103	76½	51½	39	39½
1891	96	45½	49½	41	42½
1892	94	50½	52	40½	37½
1893	98½	57	50½	43½	37

Forest wealth of Canada.

5 (a)—*Concluded.*

Montreal, Lachine, Sorel and Three Rivers—*Concluded.*

1885.		1890.		1891.		1892.		1893.		
Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	Pieces.	Tons, 40 ft.	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
.....	.....	33	49·20	.....	.....	.....	.....	.....	.....	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
9	18·00	.....	.....	.....	.....	86	124·14	.....	.....	6
9	18·00	33	49·20	.....	.....	86	124·14	.....	.....
116	995·05	60	514·28	18	154·39	3	23·31	1	4·28	1
279	2,393·02	125	1,070·06	8	66·01	4	30·09	16	134·16	2
58	493·27	2	13·11	.....	.....	.....	.....	3	25·37	3
200	640·00	.....	.....	.....	.....	.....	.....	.....	.....	4
653	4,521·34	187	1,598·05	26	221·00	7	54·00	20	165·01	

L A T I O N .

53,425	64,244·32	68,826	95,723·20	93,456	134,202·17	48,990	60,515·33	42,593	55,951·01	1
135,444	160,424·18	149,315	160,308·27	153,083	167,865·08	64,583	71,513·34	93,469	105,881·05	2
10,231	7,664·32	19,175	11,972·17	20,485	11,489·13	4,702	2,779·36	6,797	3,726·07	3
5,638	4,856·04	1,432	1,046·15	9,806	7,675·38	1,504	1,002·01	8,123	6,292·21	4
6,849,180	337,232·14	110,348	6,060·38	.....	.....	21,616	1,238·27	35,900	2,056·31	5
9	18·00	33	49·20	.....	.....	86	124·14	.....	.....	6
653	4,521·34	187	1,598·05	26	221·00	7	54·00	20	165·01	7
7,054,550	578,962·14	394,316	276,759·22	276,856	321,453·36	141,488	137,228·25	186,902	174,072·36	

5 (b).

Timber showing reduction in size.

Province of Quebec—From Provincial Returns.

Years.	SAW-LOGS.		SQUARE TIMBER.		
	Pine.	Other.	White Pine.	Red Pine.	Other.
	Feet, B.M.	Feet, B.M.	Cubic feet.	Cubic feet.	Cubic feet.
1887	138	78 $\frac{3}{4}$	47	41	10 $\frac{3}{4}$
1888	135	79 $\frac{1}{2}$	44 $\frac{1}{2}$	31	31 $\frac{1}{2}$
1889	137 $\frac{3}{4}$	79 $\frac{1}{2}$	53 $\frac{1}{2}$	34 $\frac{1}{2}$	20
1890	138 $\frac{3}{4}$	78 $\frac{1}{2}$	47 $\frac{1}{2}$	36	30 $\frac{1}{2}$
1891	141	71 $\frac{1}{2}$	50 $\frac{3}{4}$	25 $\frac{1}{2}$	25 $\frac{1}{2}$
1892	163 $\frac{3}{4}$	59	75 $\frac{1}{2}$	34	31 $\frac{1}{2}$
1893	127 $\frac{1}{2}$	91 $\frac{1}{2}$	26 $\frac{1}{2}$	43	22

TABLE 6 (a).—(From United Kingdom Trade Returns.)
UNITED KINGDOM Imports of Wood and Timber—Value.

	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.
Wood and Timber.												
Hewn.....	\$ 22,586,779	\$ 22,731,363	\$ 25,354,370	\$ 32,717,087	\$ 38,369,817	\$ 23,648,700	\$ 30,648,393	\$ 28,529,753	\$ 20,115,539	\$ 14,159,469	\$ 25,560,458	\$ 23,404,136
Sawn or split.....	36,912,884	31,681,241	37,023,070	51,417,842	60,875,445	44,839,403	56,160,384	64,133,771	43,963,995	34,378,742	51,810,280	44,778,492
Staves.....	3,206,072	2,942,605	3,034,984	4,166,271	4,552,158	2,983,377	4,169,531	3,596,116	2,095,061	2,000,439	2,286,589	2,865,702
Totals.....	62,705,735	57,355,209	65,412,424	88,301,200	103,797,420	71,476,480	90,978,308	96,259,640	66,203,595	50,538,650	79,657,327	71,038,330
Wood and Timber.												
Hewn.....	\$ 25,782,982	\$ 27,327,253	\$ 22,744,294	\$ 22,566,719	\$ 16,684,882	\$ 15,817,076	\$ 19,751,902	\$ 27,432,251	\$ 24,355,593	\$ 21,903,246	\$ 23,777,803	\$ 19,703,883
Sawn or split.....	52,750,798	50,667,499	44,947,492	46,710,271	39,933,394	38,416,347	47,048,062	63,966,888	53,966,805	45,673,258	54,370,011	49,965,784
Staves.....	3,180,649	3,120,098	2,700,367	2,624,277	2,589,636	2,749,496	2,869,761	3,377,944	3,256,933	2,868,228	2,888,556	2,495,680
Totals.....	81,714,429	81,114,850	70,392,153	71,901,267	59,177,912	56,982,919	69,669,725	94,777,083	81,599,381	70,444,732	81,086,370	72,165,347

Forest wealth of Canada.

TABLE 6 (b)—(From United Kingdom Trade Returns.)

QUANTITIES of Wood of all kinds imported by United Kingdom from all Countries and amount and percentage from Canada.

Year.	HEWN.			SAWN.		
	From all Countries.	From Canada.	Canada.	From all Countries.	From Canada.	*Canada.
	50 cub. ft. loads.	50 cub. ft. loads.	Per-centage.	50 cub. ft. loads.	50 cub. ft. loads.	Per-centage.
1872.	1,782,633	443,484	24·87	3,083,349	788,288	25·57
1873.	2,071,390	365,875*	17·66	3,415,723	954,356	27·94
1874.	2,447,394	476,375	19·46	3,805,247	1,076,188	28·28
1875.	1,687,939	336,867	19·96	3,297,830	953,228	28·90
1876.	2,158,295	470,549	21·80	4,102,618	1,107,347	26·99
1877.	2,079,613	485,720	23·36	4,572,748	1,256,212	27·47
Total.....	12,227,264	2,578,870	.....	22,277,515	6,135,619	.....
Average.....	2,037,877	429,812	21·91	3,712,919	1,022,603	27·54
1885.	1,935,854	256,280	13·24	4,235,508	999,775	23·60
1886.	1,582,762	161,733	10·21	3,785,786	953,440	25·85
1887.	1,718,466	165,240	9·62	3,797,747	872,406	22·97
1888.	1,989,851	191,374	9·62	4,357,064	930,523	21·36
1889.	2,392,223	228,005	9·53	5,319,326	1,235,258	23·22
1890.	2,278,171	180,066	7·90	4,778,676	1,185,569	24·81
1891.	2,250,392	151,828	6·75	4,379,060	891,094	23·49
1892.	2,469,139	194,654	7·88	5,090,798	1,204,838	23·67
1893.	2,126,888	136,364	6·41	4,761,717	1,115,674	23·43
Total.....	18,743,746	1,665,544	.....	40,505,682	9,388,577	.....
Average.....	2,082,638	185,060	8·89	4,500,631	1,043,175	23·18

TABLE

CENSUS Returns—Southern

Counties.	Year.	SQUARE PINE— NUMBER OF CUBIC FEET.		Cubic Feet of Squ're Oak.	Cubic Feet of Square or Sided Tamar- ack.	Cubic Feet of Square or Sided Birch and Maple.	Cubic Feet of Square Elm.	CUBIC FEET OF WALNUT.		Cubic Feet of Hick- ory.	Cubic Feet of all other Square or Sided Timber.
		White.	Red.					Black	Other Spec- ies.		
1 Bagot	1891	21,210	4,208	2,300	10,924	3,200	4,380		6,700		843,461
do	1881	10,850	4,200		149,930	340	1,624				150,238
2 Beauce	1891	7,448	338		22,716	400				200	483,702
do	1881	480			42,231	16,152		630	226		577,207
3 Beauharnois	1891	7,020	1,500	6,870	10,511	8,900	17,555		2,508	7,510	20,708
do	1881				650	194	302				27,496
4 Bellechasse	1891	928		342	925	434	376	2,682	2,415		116,139
do	1881	156		36	2,163				358		62,229
5 Bonaventure	1891	2,386	300	15	19,713	10,289					124,622
do	1881	38,884			3,260	97,374				240	106,376
6 Brome	1891	217	268			50,947	1,844		500		35,727
do	1881					30,895	250				150,238
7 Chambly	1891	22,167	500	4,122	19,089		5,662		1,270		9,046
do	1881	17,765	1,300	8,501	39,310	2,364	2,384		144	200	25,409
8 Chateauguay	1891	32,762	19,150	2,910	82,965	57,710	34,175		125	20	1,804,760
do	1881	5,536			6,606		25			100	90,824
9 Compton	1891	600	7,000		57,890	73,245	112				178,794
do	1881	4,812	300	25	99,411	77,152	1,735			44	1,216,095
10 Dorchester	1891	90			31,411	7,890	500				192,494
do	1881	2,608	2,600		5,891	10,550				239	187,841
11 Drummond and Arthabaska	1891	40,032	48		70,707	3,804	507		480		221,844
do	1881	7,305	6,425		161,524	45,023	2,043		1,203	150	593,968
12 Gaspé	1891	16,225	515		2,500	3,365					281,382
do	1881	1,171			2,598	7,158			128		201,644
13 Huntingdon	1891	14			2,480	9,694	2,394		45	90	23,271
do	1881	180		36	1,752		1,802			800	45,125
14 Iberville	1891	4,046	5,615	1,500	2,872	200	1,933	400	400		32,567
do	1881	41,738	14,040	12,139	15,197	15,350	20,070		900		189,994
15 Kamouraska	1891										22,450
do	1881				1,482	48					70,888
16 Laprairie	1891	2,087	10,190	5,767	19,185	50	6,005	24	1,350	30	54,884
do	1881	6,123	400	716	23,546	232	898		11	25	18,525
17 Lévis	1891	3,570		30	19,519	1,018				95	56,176
do	1881	2,849	30	165	9,773	1,000					105,104
18 L'Islet	1891	2,000				15					11,405
do	1881					232					9,600
19 Lotbinière	1891	168	400		51,084	40	800		125		198,133
do	1881	1,321	83		32,414	350	5		100	40	110,561
20 Megantic	1891				240	17,767			760	410	214,694
do	1881	925		120	4,038	27,291	626		7,790	750	117,239
21 Missisquoi	1891	3,050	4,523	600	36,369	11,400	800	400	7,000		106,437
do	1881	8,435	200	1,659	4,545	2,126	1,174		10		290,127
22 Montmagny	1891	1,050		803	8,619						56,247
do	1881		45	66	1,547	1,752					106,385
23 Napierville	1891	24,332	2,500	790	19,716	760	8,870		600		80,327
do	1881	16,028			40,327	76	330		1,000		75,027
24 Nicolet	1891	1,549	200	1,000	36,492	130	190			800	292,988
do	1881	9,317		1,500	401,184	1,300			1,020		363,213
25 Richelieu	1891	22,755		315	60,249	445	13,012		500		50,590
do	1881	6,622	3,060	1,162	27,316	12	60				14,576
26 Richmond & Wolfe	1891	1,679	75		149,826	142,692	4,925		5,240		190,155
do	1881	884	20		15,565	19,578	24,000		1,313		1,088,205
27 Rimouski	1891	107		41	6,727	54,984			450	1,500	553,254
do	1881	932	1,142		60,002	2,183,724					637,675
28 Rouville	1891	57,790	3,250	5,400	6,305	3,050	10,009		6,010	32,449	187,461
do	1881	27,184	7,100	1,180	33,197	2,300	2,240		2,200		192,020
29 St. Hyacinthe	1891	42,828	4,900	3,100	87,596	4,214	2,800		1,600	240	50,318
do	1881	34,100	100	8,224	138,455	87,968	57,280		70	180	479,414
30 St. Jean	1891	12,564	3,300	505	5,200	600	3,406		1,050		15,202
do	1881	4,619	960	20	32,756	1,504	835		240	400	108,805

Forest wealth of Canada.

7 (a).

Quebec, by Counties.

Number of Census Standard Pine Logs.	Number of Census Standard Spruce and other Logs.	Number of Spars and Masts	Thousands of Staves	Cords of Lath-wood.	Cords of Tan-bark.	Cords of Fire-wood.	Number of Fence Posts.	Number of Railway Ties.	Number of Telegraph Posts.	Cords of Pulp-wood.	Thousands of Shingles	
11,346	68,107	154	2	57,078	1,032	55,366	157,610	5,120	5,360	80	2,711	1
4,059	239,873	75	1	42	13,588	104,456						
15,978	260,761	314	430	541	524	161,032	229,396	47,915	1,995	49,763	3,804	2
97,309	397,315	215	28	401	143	146,679						
2,571	4,238	1			19	20,641	53,565	1,550			521	3
178	3,640					11,906						
1,245	99,087	90		76	69	46,489	160,948		1,100		1,460	4
580	103,296	10			241	42,519						
35,384	141,615	119	1,501	5		71,029	355,051	257,901	1,927		9,988	5
6,496	95,933	6,996	441	397	1	93,215						
913	213,313	80		30	5,866	83,472	26,839	7,727	1,035		1,790	6
4,059	239,873	75	1	42	13,588	104,456						
2,675	8,359					8,900	9,350					7
14,228	28,230		11		5	10,804						
7,266	35,362				432	28,444	61,571			346	222	8
26,995	41,193				119	28,550						
12,265	1,057,132	707	28	20	173	109,512	69,252	147,048	18,820	15,698	3,840	9
93,847	324,002	9,942	7		1,751	86,005						
3,934	144,024	20		62	460	73,129	199,253	6,078			6,696	10
2,486	78,929	20	12		88	73,848						
105,385	478,689	266	2,030	16,958	19,013	224,368	839,775	205,264	14,725	6,791	10,116	11
172,561	931,141	9,986	11	7,832	69,286	215,849						
7,024	63,405	5,149	217	9	30	80,760	471,165	16,864	2	5,633	1,922	12
36,511	94,321	594	626	21		82,004						
4,405	34,965	80			566	48,144	73,211	2,381	3,585	521	1,672	13
2,991	38,988	205	8	240	902	38,773						
616	1,945				31	11,840	33,465				183	14
635	11,521	603	89		985	17,981						
57,293	109,769	813	63	200	3	34,788	62,529		937		7,485	15
45,144	89,453	13	22		45	45,048						
3,504	2,322				1	10,371	16,052	75	20		216	
439	671					12,961						
5,411	45,564	241			1,096	35,414	117,271	2,631			508	17
28,537	79,714	732			1,379	45,237						
6,610	156,369	36	5		38	23,064	108,425	450	156		814	18
1,859	150,640	4,737	23		72	29,797						
5,089	76,734	1,980	3	21	2,017	64,002	198,917	14,218	143		2,357	19
2,119	43,603	255			2,519	85,749						
3,226	198,462	10	100	101	13,528	91,736	127,359	49,431	1,132	411	4,792	20
10,767	109,234	3,220	41	1,106	7,587	75,730						
1,515	24,568				1,064	48,993	77,240	400	149	6	947	21
3,008	91,297	7		26	7,601	56,824						
1,013	242,251	294	72	40	126	16,818	127,642	100			818	22
3,994	157,483	303	24	300	52	21,016						
5,333	35,197				34	11,278	46,535	850	140	411	157	23
103,827	48,233				113	15,493						
120,625	552,112	6,874		337	41,588	116,233	390,441	149,413	5,162	8,328	7,775	24
115,285	386,466	4,242	297	396	46,160	122,005						
2,201	9,159	560	50		579	22,352	149,437	1,000			1,554	25
3,000	14,914	14	1		275	27,645						
26,951	784,693	83	34,000	69	6,599	110,923	129,514	162,204	2,491	16,994	5,205	26
14,091	481,745		184	2,625	32,228	105,088						
19,816	404,421	161		8	19	81,599	487,630	263,898	117	1,831	6,805	27
2,521	214,839	1,173	5	11		82,773						
31,737	40,884			6	613	29,157	49,052	3,444			1,250	28
2,776	35,048				3,013	21,839						
39,805	90,136				167	22,347	329,050				1,472	29
22,142	133,919	26	1		471	27,236						
1,284	651				22	7,593	12,662			10	103	30
593	4,730				32	13,786						

TABLE

CENSUS Returns—Southern

Counties.	Year.	SQUARE PINE— NUMBER OF CUBIC FEET.		Cubic Feet of Squre Oak.	Cubic Feet of Square or Sided Tamar- ack.	Cubic Feet of Square or Sided Birch and Maple.	Cubic Feet of Square Elm.	CUBIC FEET OF WALNUT.		Cubic Feet of Hick- ory.	Cubic Feet of all other Square or Sided Timber.
		White.	Red.					Black	Other Spec- ies.		
31 Shefford	1891	27,270	1,000	800	9,759	123,950	2,660	2,000	500	279,375	
do	1881	2,290			20,156	7,556	10			1,097,660	
32 Sherbrooke	1891				320	25				23,275	
do	1881					26		20		7,073	
33 Soulanges	1891	514		130	1,352	15	1,250			4,063	
do	1881	29,865	9,160	1,790	30,953	1,590	1,788	1,640		42,410	
34 Stanstead	1891		7		32,005	17,299	6			70,257	
do	1881	15			24,553	93,042				134,766	
35 Temiscouata	1891	340	200		6,263	3,544				223,973	
do	1881	440	34		25,416	1,261				128,260	
36 Vaudreuil	1891	3,969		56	4,450	2,022	13,133	2,000	14,816	955	89,833
do	1881	15,650	200	1,800	6,530	6,100		3,400			43,640
37 Verchères	1891	155,491	5,000	11,379	120,299	8,750	4,923	1,342	510	138,564	
do	1881	22,655	278	3,410	40,277	5,581	3,933	1	1	54,979	
38 Yamaska	1891	34,471	350		288,495	1,246	332		55	32,495	
do	1881	68,875	5,370		113,357	1,390	25			57,901	

Forest wealth of Canada.

7 (a)—*Concluded.*

Quebec, by Counties.

Number of Census Standard Pine Logs.	Number of Census Standard Spruce and other Logs.	Number of Spars and Masts	Thousands of Staves	Cords of Lath-wood.	Cords of Tan-bark.	Cords of Fire-wood.	Number of Fence Posts.	Number of Railway Ties.	Number of Telegraph Posts.	Cords of Pulp-wood.	Thousands of Shingles
4,428	225,529	40	1,380	132	8,996	84,798	171,750	35,859	343	98	2,684
52,195	438,820	634	24	598	41,492	134,290	.....	.....	.....	.....	.....
798	34,633	.....	102	5,032	467	28,965	10,625	19,673	545	139	504
300	107,902	.....	.....	3	988	29,404	.....	.....	.....	.....	.....
861	4,398	10	.....	.....	91	16,478	21,215	200	50	10	177
28,731	66,481	85	.....	.....	52	30,690	.....	.....	.....	.....	.....
388	398,458	260	.....	.....	883	50,302	21,586	27,275	2,062	89	2,694
6,634	360,051	168	38	101	961	61,639	.....	.....	.....	.....	.....
558,760	1,226,926	6,461	44	.....	.....	72,445	461,037	19,445	1,877	642	8,277
51,060	85,019	3,795	59	150	.....	62,695	.....	.....	.....	.....	.....
1,375	20,782	64	.....	.....	62	20,562	16,795	.....	.....	461	636
2,613	10,316	1	.....	5	119	25,784	.....	.....	.....	.....	.....
3,126	21,110	.....	4	40	44	19,589	148,449	6,785	40	.....	858
12,650	43,225	.....	.....	.....	150	23,688	.....	.....	.....	.....	.....
85,639	59,045	368	76	1	1,368	32,838	232,201	2,045	.....	.....	2,024
36,311	12,404	4,840	.....	.....	4,944	57,318	.....	.....	.....	.....	.....

TABLE 7 (b).

CENSUS Returns—Southern Quebec—Pine, Spruce, &c.

Counties.	Square Pine.		Pine Logs.		Spruce Logs, &c.		Other Square Timber.	
	1891.	1881.	1891.	1881.	1891.	1881.	1891.	1881.
<i>1st Division.</i>								
Bonaventure.....	2,686	38,884	35,384	6,496	141,615	95,933	154,629	207,250
Gaspé.....	16,740	1,171	7,024	36,511	63,405	94,321	287,247	211,528
Rimouski.....	107	2,074	19,816	2,521	404,421	214,839	616,956	2,881,401
Temiscouata.....	540	474	558,760	51,069	1,226,926	85,019	233,780	154,937
Kamouraska.....			57,293	45,144	109,769	89,453	22,450	72,418
L'Islet.....	2,000		6,610	1,859	156,369	150,640	11,420	9,832
Bellechasse.....	928	156	1,245	580	99,087	103,296	123,314	64,786
Montmagny.....	1,050	45	1,013	3,994	242,251	157,483	65,669	109,750
<i>2nd Division.</i>								
Lévis.....	3,570	2,879	5,411	28,537	45,564	79,714	76,833	116,102
Lebinière.....	568	1,404	5,089	2,119	76,734	43,603	250,182	143,470
Nicolet.....	1,749	9,317	120,625	115,285	552,112	386,466	331,600	768,217
Yamaska.....	34,821	74,245	85,639	36,311	59,045	12,404	322,623	172,673
Richelieu.....	22,755	9,632	2,201	3,000	9,159	14,914	125,111	43,126
Verchères.....	160,491	22,933	3,126	12,650	21,110	43,225	285,767	108,182
Chambly.....	22,667	19,065	2,675	14,228	8,359	28,230	39,189	78,312
Laprairie.....	12,277	6,523	3,504	439	2,322	671	87,295	43,953
Beauharnois.....	8,520		2,571	178	4,238	3,640	74,562	28,642
Huntingdon.....	14	180	4,405	2,991	34,965	38,988	37,974	49,515
<i>3rd Division.</i>								
Megantic.....		925	3,226	10,767	198,462	109,234	233,871	157,854
Beauce.....	7,786	480	15,978	97,309	260,761	397,315	507,018	636,446
Drummond and Arthabaska...	40,080	13,730	105,385	172,561	478,689	931,141	297,342	803,911
Richmond and Wolfe...	1,754	904	26,951	14,091	784,693	481,745	492,838	1,148,661
Compton.....	7,600	5,112	12,265	93,847	1,057,132	324,002	310,041	1,594,462
Sherbrooke.....			798	300	34,633	107,902	23,620	7,119
Stanstead.....	7	15	388	6,634	398,458	360,051	119,567	252,361
Bagot.....	25,418	15,050	4,059	15,978	239,873	260,761	870,965	302,132
St. Hyacinthe.....	47,723	34,200	39,805	22,142	90,136	133,919	149,868	77,591
Shefford.....	28,270	2,290	4,428	52,195	225,529	438,820	417,744	1,115,882
Brome.....	485		913	4,059	213,313	239,873	88,118	181,383
Missisquoi.....	7,573	8,635	1,515	3,008	24,568	91,296	163,006	299,641
Iberville.....	9,661	55,778	616	635	1,945	11,521	39,872	253,650
Rouville.....	61,040	34,284	31,737	2,776	40,884	35,048	250,684	233,137
St. Jean.....	15,864	5,579	1,284	593	651	4,730	25,963	144,560
Napierville.....	26,832	16,028	5,333	103,827	35,197	48,233	111,063	116,760
Chateauguay.....	51,912	5,536	7,266	26,995	35,362	41,193	1,985,675	97,553
Dorchester.....	90	5,208	3,934	2,486	144,024	78,929	242,295	204,521
Soulanges.....	514	39,025	861	28,731	4,398	66,481	6,810	80,171
Vaudreuil.....	3,969	15,850	1,375	2,613	20,782	10,316	127,265	61,370

Forest wealth of Canada.

TABLE 7 (c).

CENSUS Returns—Southern Quebec—Square Pine and Pine Logs.

Counties.	Cubic feet of Square Pine.			No. of Pine Logs.		
	1891.	1881.	1871.	1891.	1881.	1871.
<i>1st Division.</i>						
Bonaventure.....	2,686	38,884	119,792	35,384	6,496	11,857
Gaspé.....	16,740	1,171	3,813	7,024	36,511	20,466
Rimouski.....	107	2,074	507	19,816	2,521	3,960
Temiscouata.....	540	474	12,944	558,760	51,060	6,802
Kamouraska.....			21,116	57,293	45,144	16,685
L'Islet.....	2,000			6,610	1,859	29,377
Bellechasse.....	928	156		1,245	580	15,351
Montmagny.....	1,050	45	80	1,013	3,994	919
<i>2nd Division.</i>						
Lévis.....	3,570	2,879	93,962	5,411	28,537	101,822
Lotbinière.....	568	1,404	3,520	5,089	2,119	13,154
Nicolet.....	1,749	9,317	34,306	120,625	115,285	131,604
Yamaska.....	34,821	74,245	271,306	85,639	36,311	72,589
Richelieu.....	22,755	9,682	15,042	2,201	3,000	3,635
Verchères.....	160,491	22,933	13,443	3,126	12,650	3,480
Chambly.....	22,667	19,065	14,466	2,675	14,228	1,600
Laprairie.....	12,277	6,523	29,552	3,504	439	660
Beauharnois.....	8,520		28,324	2,571	178	11,642
Huntingdon.....	14	180	4,102	4,405	2,991	6,734
<i>3rd Division.</i>						
Megantic.....		925	968	3,226	10,767	9,492
Beauce.....	7,786	480	5,290	15,978	97,309	50,836
Drummond and Arthabaska.....	40,080	13,730	18,497	105,385	172,561	208,913
Richmond and Wolfe.....	1,754	904	252	26,951	14,091	10,253
Compton.....	7,600	5,112	24,522	12,265	93,847	9,100
Sherbrooke.....			2,000	798	300	302
Stanstead.....	7	15	8,500	388	6,634	11,566
Bagot.....	25,418	15,050	1,969	4,059	15,978	12,271
St. Hyacinthe.....	47,728	34,200	6,490	39,805	22,142	3,272
Shefford.....	28,270	2,290	18,571	4,428	52,195	9,614
Brome.....	485			913	4,059	3,751
Missisquoi.....	7,573	8,635	575	1,515	3,008	5,621
Iberville.....	9,661	55,778	32,345	616	635	1,048
Rouville.....	61,040	34,284	24,944	31,737	2,776	3,531
St. Jean.....	15,864	5,579	200	1,284	593	734
Napierville.....	26,832	16,028	6,990	5,333	103,827	9,866
Chateauguay.....	51,912	5,536	3,250	7,266	26,995	3,685
Dorchester.....	90	5,208	306	3,934	2,486	1,534
Soulanges.....	514	39,025	68,839	861	28,731	8,362
Vaudreuil.....	3,969	15,850	34,043	1,375	2,613	8,741

ANALYSIS of Table 7 (c).

Counties.	1891.	1881.	1871.
<i>1st Division.</i>			
Square pine..... cub. ft.	24,051	42,804	158,252
Pine logs..... No.	687,145	148,165	105,417
<i>2nd Division.</i>			
quare pine..... cub. ft.	267,432	146,228	508,023
Pine logs..... No.	235,246	215,738	346,920
<i>3rd Division.</i>			
quare pine..... cub. ft.	336,583	258,629	268,551
Pine logs..... No.	268,118	661,546	372,492
<i>1st Division.</i>			
ine..... cub. ft.	5,727,354	1,272,573	1,033,213
<i>2nd Division.</i>			
Pine..... cub. ft.	2,219,973	1,936,853	3,387,459
<i>3rd Division.</i>			
Pine..... cub. ft.	2,561,962	5,749,460	3,360,234
<i>1st, 2nd and 3rd Divisions together.</i>			
Pine..... cub. ft.	10,509,289	8,958,886	7,780,906

Forest wealth of Canada.

TABLE 7 (d).

TIMBER Agencies South of St. Lawrence, Que.

Year.	Pine Logs.		Spruce Logs.		Square White Pine.		Square Red Pine.	
	Pieces.	Pieces.	Pieces.	Cub. ft.	Pieces.	Cub. ft.	Pieces.	Cub. ft.
1881.....	42,910	626,311	266	7,955	380		6,400	
1882.....	44,372	671,798	56	4,045	15		332	
1883.....	32,087	661,411	27	1,840	8		240	
1884.....	9,331	272,407	121	4,524				
1885.....	44,208	623,366	21	1,885	25		875	
1886.....	39,870	760,232	78	1,939				
1887.....	11,901	58,289	359	4,218				
1888.....	31,874	882,512	10	560				
1889.....	26,047	573,954	812	7,854				
1890.....	31,704	1,044,603	48	1,853				
1891.....	29,129	1,083,418	4	199				
Ten years.....	300,423	7,131,990	1,536	28,917	48		1,447	
Average.....	30,042	713,199	153	2,891	5		145	

TABLE 8 (a.)—(From Trade

AVERAGE of Total Exports of the Products of Canadian Forest in three-year

ARTICLES.			AVERAGE EXPORTS FOR					
			1877-79.		1880-82.		1883-85.	
			Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>Great Britain.</i>				\$		\$		\$
1	Ashes, pot and pearl . . .	Brls.	13,516	310,771	10,287	289,464	6,566	199,781
2	“ other							
3	Tanner's bark	Cords	371	5,656	55	100		
4	Basswood, butternut and hickory	M. ft.	679	18,134	782	21,915	760	22,326
5	Firewood	Cords	33	123	293	1,093	32	88
6	Hop, hoop, telegraph and other poles			418		1,220		256
7	Knees and futtocks	Pcs.	393	518	121	144	789	538
8	Lathwood	Cords	1,603	13,694	761	6,111	391	3,008
Logs—								
9	Oak	M. ft.	296	4,443	48	2,397		
10	Spruce	“	14	540				
11	All other	“	480	7,458	78	432	174	1,132
Lumber—								
12	Battens	Pcs.	52,575	10,709	48,435	11,496	13,100	6,543
13	Deals	Std. H.	222,940	6,719,581	214,599	6,619,568	224,450	6,854,271
14	Deal ends	“	12,433	279,602	9,037	244,819	10,699	287,224
15	Laths, &c.	M.	11,969	41,497	5,910	23,943	5,982	33,347
16	Boards &c.	M. ft.	20,115	279,869	19,389	243,493	18,438	229,949
17	Scantlings, &c.	“	11,530	76,889	10,666	72,659	7,431	51,779
18	Staves, standard	M.	916	238,371	442	108,694	384	134,088
19	“ other & headings. “	“	1,662	109,399	758	48,616	733	59,563
20	All other			18,615		11,024		10,937
21	Masts and spars	Pcs.	3,945	17,572	3,694	11,838	3,406	15,149
22	Oars	Prs.	91	104	38	34	583	1,440
23	Shingles	M.	232	685	5	5	1	2
24	Shingle bolts	Cords						
25	Sleepers	Pcs.	7,746	34,491	28,116	36,097	44,342	63,145
26	Stave bolts	Cords						
27	Shooks	No.	2,128	1,833	35	12	4,845	2,795
Timber, square—								
28	Ash	Tons	5,918	58,165	6,955	80,302	8,619	110,198
29	Birch	“	31,183	211,029	31,902	215,864	32,745	244,373
30	Elm.	“	18,426	214,417	19,698	243,084	19,018	251,175
31	Maple	“	296	2,692	371	4,878	530	6,480
32	Oak	“	59,164	969,112	46,449	827,607	44,767	896,224
33	Pine, white.	“	279,243	2,715,914	220,731	2,304,937	216,210	2,752,456
34	“ red.	“	37,901	270,367	22,856	213,438	22,162	177,546
35	All other	“	4,171	56,676	4,466	86,657	5,285	91,462
36	Pulpwood							
37	Other wood			2,795		13,112		21,573
38	Total			12,692,139		11,745,053		12,528,898
<i>United States.</i>								
39	Ashes, leached and other			4,656		14,306		31,645
40	“ pot and pearl	Brls.	2,163	26,735	762	17,769	2,481	10,570
41	Tanner's bark	Cords	82,549	290,992	101,579	449,724	71,449	359,230
42	Basswood, butternut and hickory	M. ft.	453	4,314	1,076	7,406	669	8,655
43	Firewood	Cords	163,145	317,227	155,923	323,462	156,182	352,843
44	Hop, hoop, telegraph and other poles			36,641		176,486		164,017
45	Knees and futtocks	Pcs.	26,643	11,703	17,263	22,263	21,064	18,977
46	Lathwood	Cords	9	44		171	83	91

Forest wealth of Canada.

and Navigation Returns.)

periods, 1877-1891, inclusive, together with Exports for the years 1892 and 1893.

THE PERIODS OF				EXPORTS FOR YEAR.				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity,	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
4,266	112,598	2,511	71,142	2,056	61,581	1,651	50,106	1
							3,455	2
								3
431	11,619	630	19,107	510	20,782	485	17,602	4
5	19					1	3	5
	267		159		440		200	6
22	21			4	6			7
98	861	5	66					8
								9
9	252							10
8	47							11
113	6,117	182	5,215	14	1,640	437	7,581	11
	8,019		5,089		7,918		2,781	12
219,477	6,502,662	250,613	7,517,355	211,209	6,116,237	236,965	7,368,126	13
10,172	262,701	10,244	278,332	11,542	281,018	11,895	289,697	14
3,439	17,216	2,890	19,026	1,088	5,820	5,628	32,524	15
13,573	177,319	17,972	206,850	17,192	169,332	27,127	28,244	16
5,325	36,883	6,041	43,048	4,791	33,072	6,211	43,198	17
161	30,864	51	6,786	17	1,605	2	108	18
2,359	33,133	11,393	60,043	7,330	34,800		39,867	19
	103,085		159,523		82,134		270,772	20
646	10,577	102	3,592	1,407	1,965	59	757	21
								22
7	8	2,807	5,556	3,241	7,536			23
								24
20,782	75,462	10,124	32,126	377	1,569	7,226	2,247	25
								26
95,700	11,198	336,735	26,281	633,739	42,784	441,971	3,934	27
								28
5,455	67,062	6,055	78,378	3,446	42,940	5,509	64,126	28
24,992	177,352	24,071	198,378	29,354	235,241	25,976	207,789	29
13,269	168,085	16,098	215,813	16,148	219,569	15,468	207,457	30
161	1,761	587	7,848	364	4,103	253	3,240	31
29,976	574,314	31,835	668,420	22,940	472,792	27,052	579,636	32
137,894	1,604,621	156,265	2,239,090	123,820	1,644,031	105,579	1,479,255	33
12,311	103,575	10,008	98,276	7,131	62,041	7,827	75,642	34
3,288	86,740	3,875	69,795	3,961	54,805	998	22,027	35
			13,723		36,146		13,461	36
	1,127		2,274		3,412		2,647	37
								38
	10,185,565		12,051,724		9,645,319		11,105,482	38
								39
	35,843		31,322		40,164		55,651	39
275	6,528	287	7,601	470	11,917	432	11,203	40
52,738	234,723	37,859	169,766	43,856	217,552	41,872	205,495	41
								42
179	2,058	1,172	16,459	2,067	30,563	228	3,779	42
154,626	320,912	146,128	311,902	179,103	370,152	181,398	354,392	43
								44
	115,239		110,616		83,141		113,763	44
16,736	10,773	27,146	23,836	16,204	14,113	22,007	13,984	45
53	160	797	1,633			2,590	6,491	46

TABLE 8 (a)—(From Trade and
AVERAGE of Total Exports of the Products of

ARTICLES.		AVERAGE EXPORTS FOR THE					
		1877-79.		1880-82.		1883-85.	
		Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>United States—Con.</i>			\$		\$		\$
Logs—							
1	Hemlock..... M. ft.	1,065	4,104	4,425	13,093	4,257	18,181
2	Oak..... "	826	7,703	3,788	49,619	1,727	25,255
3	Elm..... "						
4	Spruce..... "	3,513	12,454	5,449	19,179	8,080	37,367
5	Pine..... "	223	1,212	2,009	16,683	1,406	9,708
6	Tamarack..... "	9	52	133	1,247	5	48
7	All other..... "	10,854	54,245	23,581	101,319	30,322	147,513
Lumber—							
8	Battens..... Pcs.	47	211			2	4
9	Deals..... Std. H.	3,149	80,448	9,385	270,511	17,373	521,126
10	Deal ends..... "	19	227	33	696	42	704
11	Laths, &c..... M.	140,588	134,940	199,469	210,099	233,279	345,340
12	Boards, &c..... M. ft.	336,374	3,162,347	603,197	6,198,325	582,355	7,265,254
13	Scantlings, &c..... "	11,594	91,241	14,852	121,239	8,531	64,329
14	Staves, standard..... M.	216	9,995	301	3,281	266	1,851
15	do other and headings..... "	2,593	14,772	16,173	72,946	52,950	256,476
16	All other..... "		25,709		42,975		136,171
17	Masts and spars..... Pcs.	15,114	11,950	40,770	23,994	18,264	16,075
18	Posts, cedar, tamarack and other.						
19	Shingles..... M.	51,967	100,023	96,998	203,982	92,674	233,863
20	Shingle bolts..... Cords.	381	953	1,134	3,747	705	2,816
21	Sleepers..... Pcs.	996,237	182,397	2,396,535	342,009	1,394,638	325,197
22	Stave bolts..... Cords.	13,824	28,032	76,593	114,922	51,242	147,177
23	Shooks..... No.		14,747		29,289	15,965	6,576
Timber, square—							
24	Ash..... Tons.			49	190	154	1,301
25	Birch..... "	43	262	44	430	75	655
26	Elm..... "	92	740	494	1,826	122	373
27	Oak..... "	950	6,484	1,462	9,767	527	4,644
28	Maple..... "			356	2,549	64	660
29	Pine, white..... "	1,059	5,413	5,359	19,477	2,544	13,388
30	do red..... "	42	333	475	2,176	29	242
31	All other..... "	946	5,332	3,011	10,432	1,470	8,763
32	Pulpwood.....						
33	Other wood.....		67,676		142,554		128,808
34	Totals.....		4,716,314		9,040,202		10,665,893
<i>Labrador.</i>							
Lumber—							
35	Deals..... Std. H.			1	49	1	39
36	Boards, &c..... M. ft.	3	40	5	97	4	57
37	Scantlings..... "				6		
38	Staves, other & headings..... M.		17				
39	Staves, all other..... "		70				
40	Shingles..... M.	32	64	10	25	3	6
41	Timber, square, elm..... Tons.			1	15		
42	Totals.....		191		192		102

* Includes \$63,957 of Piles and Pile Lumber.

Forest wealth of Canada.

Navigation Returns.)—Continued.

the Canadian Forest in three-year periods—Continued.

PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
5,200	21,302	3,861	15,450	5,057	21,420	5,880	26,036	1
1,139	18,529	2,037	37,683	1,153	21,297	1,348	21,087	2
7,305	35,506	27,726	145,731	34,116	208,709	33,615	219,065	3
18,594	90,032	24,976	150,843	23,434	141,168	21,103	123,254	4
3,229	25,856	25,561	223,065	73,963	651,540	127,079	1,057,095	5
		2	21					6
32,814	157,236	15,522	83,450	12,062	68,553	9,007	61,976	7
	2,190							8
26,215	737,510	22,782	652,495	21,135	590,883	20,666	605,593	9
233	5,605	36	676	22	207			10
280,299	407,511	328,640	453,514	309,448	442,469	357,573	565,968	11
551,995	6,581,426	656,486	7,448,923	640,448	7,359,356	747,719	8,571,525	12
15,161	124,113	12,372	104,575	11,064	87,881	11,445	101,786	13
110	1,657	6	486			10	141	14
59,384	254,899	73,995	331,073	85,262	417,888		563,318	15
	466,616		326,636		251,754		360,207	16
14,093	9,228	20,662	12,433	8,343	4,544	760	1,241	17
			37,324		105,772		70,485	18
125,790	265,988	220,646	469,134	333,693	695,566	403,203	827,816	19
285	1,695	206	1,774		3	239	1,772	20
1,913,197	370,488	1,895,167	358,097	1,467,356	259,384	1,404,672	212,890	21
49,700	118,955	46,801	122,002	33,292	91,784	37,567	103,365	22
1,097,012	136,991	1,916,380	226,160	774,841	100,256	234,296	65,258	23
								24
16	191	1	14					25
50	363	257	754					26
4	28	7	99	65	193			27
137	1,667	27	314					28
3	50	64	1,299			87	1,010	29
177	1,704	95	1,161	162	1,542	192	1,728	30
135	1,212	20	249					31
342	2,074	302	2,150	931	4,119	1,000	7,271	32
			75,944		183,312		371,981	33
			193,040		155,441		*134,839	34
	199,228							35
	10,766,086		12,149,704		12,632,643		14,841,455	36
								37
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								100

TABLE 8 (a)—(From Trade and
AVERAGE of Total Exports of the Products of

ARTICLES.	AVERAGE EXPORTS FOR					
	1877-79.		1880-82.		1883-85.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>Newfoundland.</i>						
		\$		\$		\$
1 Ashes, pot and pearl	Brls.	4	17	404	26	878
2 Tanner's bark	Cords		452	1,736	540	2,638
3 Basswood, butternut and hickory	M. ft.	22	244	8	5	97
4 Firewood	Cords	5	12	56	14	28
5 Hop, hoop, telegraph and other poles			189			
6 Knees and futtocks	Pcs.	43	35	23	26	135
7 Logs—						
8 Hemlock	M. ft.	305	648	2	11	30
9 Oak	"			4	177	
10 Spruce	"					
11 All other	"	26	59	1	25	
12 Lumber—						
13 Batts	Pcs.	123	18			
14 Deals	Std.H.	194	4,294	115	2,529	128
15 Deal ends	"			5	116	
16 Laths, &c	M.	813	1,196	1,059	1,309	781
17 Boards, &c	M. ft.	8,486	57,278	4,595	37,734	8,736
18 Scantlings	"	658	5,660	361	3,322	326
19 Staves, standard	M.	70	1,654	1,112	1,802	101
20 Staves, other & headings.	"	929	13,726	986	6,137	198
21 All other	"		728		2,372	
22 Masts and spars	Pcs.	985	2,772	137	1,336	452
23 Oars	Prs.	21	12			
24 Shingles	M.	7,661	12,102	4,871	6,973	7,026
25 Stave bolts	Cords.					10,541
26 Shooks	No.	317	1,112		201	1,080
27 Timber, square—						
28 Birch	Tons.	138	751	105	633	153
29 Elm	"	2	24	1	12	5
30 Maple	"			1	18	
31 Oak	"	7	133	4	98	11
32 Pine, white	"	43	343	183	1,011	68
33 do red	"	4	71	18	387	8
34 All other	"	179	996	18	56	210
35 Sleepers	Pcs.	230	46	14,408	3,373	2,700
36 Other wood			386		215	1,488
37 Total			104,493		72,581	122,908
<i>Belgium.</i>						
38 Ashes, pot and pearl	Brls.			4	90	
39 Basswood, butternut and hickory	M. ft.			28	872	13
40 Lumber—						407
41 Deals	Std.H.	216	5,284	221	6,193	39
42 Deal ends	"	10	202	19	427	64
43 Laths, &c	M.	8	111			4
44 Boards, &c	M. ft.	188	6,581	40	647	3
45 Staves, standard	M.	1	271		71	
46 do other & headings.	"	2	101			
47 All other	"					
48 Timber, square—						
49 Ash	Tons.	8	67	63	595	17
50 Birch	"					1
51 Pulpwood	"					10

Forest wealth of Canada.

Navigation Returns)—*Continued.*

the Canadian Forest in three-year periods—*Continued.*

THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
		5	139					1
								2
25	579	21	331	2	50	21	362	3
6	14	2	4			5	10	4
			63					5
2,033	117							6
2	18	1	40			131	1,342	7
		4	165					8
2	20							9
								10
							314	11
40	623	3	110	16	448	105	2,894	12
								13
578	1,305	1,145	1,918	262	1,692	396	569	14
3,314	33,472	2,701	29,661	1,802	19,742	18,667	194,941	15
280	2,669	98	990	61	582	722	8,878	16
104	2,177	3	12			367	1,600	17
118	2,765	189	2,538	496	5,068		1,136	18
	1,194		3,508		3,999		27,613	19
342	1,786	20	228	50	884	40	754	20
								21
1,398	2,278	2,035	3,022	243	470	3,859	6,126	22
			5					23
10,042	757	36,359	1,787	4,200	518	1,550	196	24
								25
5	30	64	270			680	2,925	26
1	13	17	253			12	187	27
						4	69	28
8	179	4	96	6	134	14	321	29
1	13	5	214			18	172	30
1	12	3	51			189	2,208	31
18	207	21	67	65	520	468	2,570	32
						3	13	33
	105		354		24		205	34
	50,334		45,826		34,131		255,455	
								35
16	489	16	510	30	991	14	451	36
								37
42	1,947	85	3,770					38
								39
11	169	10	306			786	11,790	40
								41
			33					42
								43
								44
								45
								46

TABLE 8 (a)—(From Trade and
AVERAGE of Total Exports of the Products of

ARTICLES.		AVERAGE EXPORT FOR					
		1877-79.		1880-82.		1883-85.	
		Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>Belgium—Concluded.</i>			\$		\$		\$
Timber, square—							
1	Elm..... Tons.			42	500		
2	Oak..... "	2,109	34,440	607	11,063	250	4,455
3	Maple..... "			14	152		
4	Pine, white..... "	723	5,289	348	3,290	153	1,385
5	do red..... "			65	525		
6	All other..... "			7	102		
7	Logs..... M. ft.						
8	Total.....		52,346		24,529		9,788
<i>Italy.</i>							
Lumber—							
9	Deals..... Std. H.			97	2,424	145	4,403
10	Deal ends..... "			5	98	1	158
11	Boards, &c..... M. ft.					92	731
12	Scantlings..... "			1	8	15	93
13	Staves, other & headings M.						
14	Total.....				2,590		5,385
<i>Holland.</i>							
15	Ashes, pot and pearl..... Brls.						
16	Basswood, butternut and hickory..... M. ft.	2	42	13	159		
17	Knees and futtocks..... Pcs.						
Lumber—							
18	Deals..... Std. H.	614	16,591	1,458	31,337	345	8,345
19	Deal ends..... "	28	509	37	708	8	146
20	Laths, &c..... M.	4	53				
21	Boards, &c..... M. ft.	23	535	18	212		
22	Scantlings..... "			61	366		
23	Staves, standard..... M.		104				
24	All other.....						
Timber, square—							
25	Ash..... Tons	23	156				
26	Oak..... "	1,350	21,401	228	3,060	135	2,749
27	Pine, white..... "	294	3,164	139	1,211	141	1,626
28	do red..... "					19	79
29	Total.....		42,555		37,103		12,945
<i>Germany.</i>							
30	Ashes, pot and pearl..... Brls.	3	64			2	64
31	Basswood, butternut and hickory..... M. ft.	12	350				
Lumber—							
32	Deals..... Std. H.	40	1,445	88	2,535	3	309
33	Deal ends..... "	3	71	3	51	3	266
34	Boards, &c..... M. ft.	514	5,315	550	4,875	24	372
35	Battens..... "			197	111		
36	Scantlings..... "			23	135		
37	Staves, standard..... M.			17	507		
38	All other.....						
39	Knees and futtocks..... Pcs.	138	467				

Forest wealth of Canada.

Navigation Returns)—*Continued.*

the Canadian Forest in three-year periods—*Continued.*

THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
								1
								2
								3
								4
								5
								6
				9	180			7
	2,605		4,619		1,171		12,241	8
								9
195	2,773	215	6,252	744	19,637			9
6	121	6	131	36	694			10
688	6,959							11
		18	86					12
								13
	9,853		6,469		20,331			14
								15
		12	367					16
								17
107	2,762	8	222	538	14,632	272	6,736	18
5	96			40	686	10	177	19
				721	15,295	578	7,516	20
								21
								22
							7,601	23
								24
								25
195	3,663	128	2,315	165	3,178			25
48	590	72	1,271					26
								27
								28
	7,051		4,175		34,530		22,030	29
								30
		23	731					30
		23	1,276	11	865			31
		33	2,293					32
		5	232					33
55	781	19	200	5	108			34
				5	150			35
								36
			1,047					37
							1,708	38
								39

TABLE 8 (a).—(From Trade and
AVERAGE of Total Exports of the Products of

ARTICLES.		AVERAGE EXPORTS FOR					
		1877-79.		1880-82.		1883-85.	
		Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>Germany—Concluded.</i>			\$		\$		\$
Timber, square—							
1	Ash..... Tons.					11	122
2	Elm..... "						5
3	Oak..... "	46	1,083			30	416
4	Maple..... "		5				
5	Pine, white..... "	148	1,470				
6	All other..... "	51	1,487			5	272
7	Logs..... M ft.						
8	Other wood..... "		3				
9	Total.....		11,760		8,214		1,826
<i>France.</i>							
10	Ashes, pot and pearl..... Brls.			10	221	159	5,043
11	Basswood, butternut and hickory..... M ft.	26	633	6	142		
12	Logs, hemlock..... "				1		
Lumber—							
13	Deals..... Std. H.	9,505	235,150	19,850	502,324	12,286	318,013
14	Deal ends..... "	414	6,852	767	13,626	317	8,394
15	Laths, &c..... M.	19	168	26	171	1	10
16	Boards, &c..... M ft.	249	5,078	834	6,804	281	2,208
17	Scantlings..... "	49	294	865	5,344	210	1,466
18	Staves, standard..... M.	4	792	1	162	1	467
19	do other and headings..... "	5	369	3	219		
20	All other.....						120
21	Masts and spars..... Pcs.	42	1,485				
22	Shingles..... M.	17	42				
23	Sleepers..... Pcs.						
Timber, square—							
24	Ash..... Tons.	99	896	111	878		
25	Birch..... "	36	358	5	17	65	551
26	Elm..... "	84	979	149	1,275	87	673
27	Maple..... "		3				
28	Oak..... "	1,985	31,838	1,358	17,428		
29	Pine, white..... "	733	5,543	698	4,454	221	2,149
30	do red..... "	8	55	1	6	216	3,195
31	All other..... "	27	392	83	552	23	315
32	Other wood.....		7				
33	Total.....		290,934		553,624		342,604
<i>Spain.</i>							
34	Basswood, butternut and hickory..... M ft.			1	20		
35	Hop, hoop, telegraph and other poles.....			1			
Lumber—							
36	Battens..... Pcs.					3,074	611
37	Deals..... Std. H.	1,159	26,443	2,372	60,136	4,648	121,587
38	Deal ends..... "	50	770	113	1,824	199	3,485
39	Laths, &c..... M.					5	36
40	Boards, &c..... M ft.	387	6,041	18	142	265	6,213
41	Scantlings..... "	27	267	50	204	323	2,279
42	Staves, standard..... M.	3	576				168
43	Masts and spars..... Pcs.	64	1,150	80	582		
44	Oars..... Prs.	165	243				
45	Shingles..... M.	9	9				

* Pulp wood.

Forest wealth of Canada.

Navigation Returns)—*Continued.*

the Canadian Forests in three-year periods—*Continued.*

THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
		21	337					1
								2
		245	5,104					3
		5	167					4
11	220	36	1,074	47	1,331			5
								6
								7
								8
	1,001		12,461		2,449		1,708	9
376	7,469	309	8,859					10
		32	1,830	38	2,646	67	4,407	11
								12
7,363	177,863	3,662	100,221	6,894	178,560	3,408	95,515	13
436	7,433	186	3,730	240	4,692	160	2,985	14
32	47							15
124	1,066	23	284			128	6,696	16
42	316	4	26	12	72			17
	33	7	1,549					18
								19
								20
								21
								22
								23
11	130	4	33					24
44	270	30	305					25
167	1,917	176	2,410					26
1	9							27
		82	2,281					28
205	2,344	433	6,091					29
60	695	20	169					30
1	23		20					31
			67				*645	32
	199,615		127,875		* 185,970		110,248	33
								34
								35
								36
1,998	52,967	1,194	29,911	981	24,728	1,622	40,235	37
139	1,826	58	1,380	61	1,065	67	1,264	38
17	25							39
7	67	34	578	59	412			40
36	328		2					41
								42
								43
								44
								45

TABLE 8 (a).—From Trade and
AVERAGE of Total Exports of the Products of

ARTICLES.		AVERAGE EXPORTS FOR					
		1877-79.		1880-82.		1883-85.	
		Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>Spain—Concluded.</i>			\$		\$		\$
Timber, square—							
1	Ash..... Tons.			112	818	36	281
2	Birch..... "				5		
3	Elm..... "			15	194	33	840
4	Maple..... "	63	1,129	25	508		
5	Oak..... "	5	54	1	3	16	67
6	Pine, white..... "	142	1,030			1	12
7	" red..... "			1	9	4	17
8	All other..... "						
9	Total.....		37,713		64,445		135,596
<i>Portugal.</i>							
Lumber—							
10	Deals..... Std. H.	612	19,381	961	28,051	1,305	42,173
11	Deal ends..... "	23	471	33	879	57	1,523
12	Laths, &c..... M.	11	52				
13	Boards, &c..... M. ft.	309	4,702	119	3,738	187	2,509
14	Scantlings..... "	20	122				
15	Staves, standard..... M.	63	20,322	78	24,206	35	13,235
16	" other, and head- ings..... "	34	5,007	21	1,871	17	1,558
17	All other.....						
18	Masts and spars..... Pcs.	31	102	14	193	40	21
19	Shingles..... M.					115	200
Timber, square—							
20	Ash..... Tons.			16	230		
21	Birch..... "	53	298	40	352	69	418
22	Elm..... "	39	407	7	100		
23	Maple..... "			2			
24	Oak..... "	124	1,983	214	3,604		
25	Pine, white..... "			17	100		
26	" red..... "	82	427	25	212		
27	All other..... "	7	173	4	168		25
28	Other wood..... "		70		7		
29	Total.....		53,519		63,711		61,662
<i>Gibraltar.</i>							
Lumber—							
30	Deals..... Std. H.	76	2,775	261	7,259	236	6,769
31	Deal ends..... "	3	72	16	405	8	220
32	Boards, &c..... M. ft.	6	89				
33	Staves, other, and head- ings..... M.	7	567	2	173		
34	Laths, &c..... "						
35	Masts and spars..... Pcs.	2	155				
36	Staves, standard..... M.	1	198				
Timber, square—							
37	Birch..... Tons.			25	315		
38	Elm..... "	12	160				
39	Oak..... "	24	439				
40	Pine, white..... "	1	3	142	933		
41	" red..... "	56	735	1	41		
42	Total.....		5,193		9,126		6,989

Forest wealth of Canada.

Navigation Returns)—*Continued.*

the Canadian Forest in three-year periods—*Continued.*

THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
8	101							1
		42	614					2
		50	1,143					3
		378	6,785					4
								5
								6
				166	796			7
								8
	55,314		40,413		27,001		41,499	9
								10
1,048	31,832	1,373	35,320	1,296	37,072	951	20,301	11
57	1,343	64	1,512	65	1,430	29	670	12
37	97			67	119			13
135	1,757	16	929	259	2,907			14
								15
2	482	2	645					16
								17
12	2,470		1,221		165			18
								19
5	9							20
67	100			50	69			21
								22
13	175			17	258			23
4	57							24
4	67							25
								26
52	1,070	8	174	187	4,112			27
4	83	1	21					28
								29
								30
								31
								32
								33
								34
								35
								36
								37
								38
								39
								40
								41
	6,799		2,200		3,802		4,696	42

TABLE 8 (a)—(From Trade and
AVERAGE of Total Exports of the Products of

ARTICLES.	AVERAGE OF EXPORTS FOR					
	1877-79.		1880-82.		1883-85.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>Madeira.</i>						
		\$			\$	\$
Lumber—						
1 Deals Std. H.	2	50	1	17		
2 Laths, &c. M.	3	3			15	47
3 Boards, &c. M. ft.	647	9,177	797	10,623	1,123	16,708
4 Scantlings "	11	154	5	48	45	605
5 Masts and spars Pcs.	12	32	18	50	6	6
6 Shingles M.						
7 Timber, all other Tons.	92	598				
8 Total		10,014		10,738		17,366
<i>French West Indies.</i>						
9 Hop, hoop, telegraph and other poles		13				
Lumber—						
10 Deals Std. H.			188	4,653		
11 Deal ends "			8	130		
12 Boards, &c. M. ft.	1,313	13,272	1,417	15,404	1,008	10,525
13 Masts and spars Pcs.	35	52	51	87	13	51
14 Oars Prs.	10	14	383	29		
15 Shingles M.	627	908	532	758	457	088
16 Sleepers Pcs.			2,449	600		
17 Shooks No.						
18 Other wood		93				8
19 Total		14,352		21,661		11,444
<i>Spanish West Indies.</i>						
20 Hop, hoop, telegraph and other poles		177		14		
Lumber—						
21 Deals Std. H.						
22 Laths, &c. M.	3	3	20	65	5	57
23 Boards, &c. M. ft.	7,425	92,253	7,155	87,196	5,371	63,414
24 Scantlings "	19	264		1	3	67
25 Staves, standard M.	1	14				
26 Staves, other & headings. "		173				
27 All other				26		4
28 Masts and spars Pcs.	40	239	34	65	25	80
29 Shingles M.	2,143	3,744	1,062	2,011	364	736
30 Shooks		101,805		43,447		22,381
31 Spruce logs M. ft.				529		20
32 Other wood						
33 Total		198,672		133,354		86,759
<i>British West Indies.</i>						
34 Firewood Cords.	15	46	81	271	40	143
35 Hop, hoop, telegraph and other poles		378		138		13
36 Knees and futtocks Pcs.	42	60	3	3	53	7
Logs—						
37 Hemlock M. ft.					9	39
38 Spruce "						

Forest wealth of Canada.

Navigation Returns)—*Continued.*

the Canadian Forest in three-year periods—*Continued.*

THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
.....								1
42	134	10	10					2
1,022	14,199	1,143	15,159	1,142	16,000	696	11,061	3
.....								4
.....		1	7			30	15	5
.....		157	182			200	400	6
.....								7
.....	14,333	.....	15,358	.....	16,000	.....	11,476	8
.....								9
.....								10
.....								11
286	2,735	299	3,055	562	5,311	383	4,650	12
.....				225	169	34	350	13
32	45	35	78	729	923	38	56	14
.....								15
1,700	104	.....		.....		.....		16
.....								17
.....								18
.....	2,884	.....	3,133	.....	6,403	.....	5,056	19
.....								20
.....	130	.....						21
2	92	.....						22
12	47	23	32	85	615	.....		23
5,628	59,556	9,894	102,698	17,244	178,452	16,611	176,751	24
49	612	77	734	.....				25
.....								26
2	40	1,129	5,452	323	1,636	.....	4,135	27
.....								28
27	106	23	161	90	349	52	223	29
780	1,421	1,397	2,918	1,385	2,349	370	613	30
.....	2,450	.....	4,733	.....	5,119	.....	4,044	31
.....		4	131	.....				32
.....	30	.....	67	.....				33
.....	64,484	.....	116,926	.....	188,520	.....	185,766	34
.....								35
60	154	21	75	31	94	.....		36
.....			59	.....			67	37
.....								38
.....		1	47	.....				39

TABLE 8 (a)—(From Trade and
AVERAGE of Total Exports of the Products of

ARTICLES.	AVERAGE EXPORTS FOR					
	1877-79.		1880-82.		1883-85.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>British West Indies—Concluded.</i>						
Lumber—		\$		\$		\$
1 Deals Std. H.	16	386	9	226	37	850
2 Deal ends “					2	30
3 Laths, &c M.	242	480	287	628	311	607
4 Boards, &c M. ft.	30,529	292,429	25,012	268,818	18,615	211,479
5 Scantlings “	24	333	46	390	118	1,122
6 Staves, standard M.	73	1,678	29	824	43	974
7 Staves, other & headings “	118	1,998	36	367	31	292
8 All other “		101		4		748
9 Masts and spars Pcs.	521	1,780	647	1,193	622	1,362
10 Oars Prs.	537	985	889	634	232	560
11 Shingles M.	15,417	38,334	12,408	28,651	14,481	30,391
12 Shooks No.		31		358		2,467
Timber—						
13 Birch Tons.	6	29				
14 All other “	1	5				
15 Other wood “		902		384		193
16 Total		339,955		302,889		251,277
<i>Canary Islands.</i>						
Lumber—						
17 Laths, &c M.	74	191	48	111		
18 Boards, &c M. ft.	301	4,176	299	4,351	36	569
19 Scantlings “	58	661	203	2,395	5	221
20 Masts and spars Pcs.	30	98				
21 Hop, hoop, telegraph and other poles “				14		
22 Total		5,126		6,871		790
<i>St. Pierre.</i>						
23 Ashes, pot, pearl and other		8		7		19
24 Firewood Cords.	63	152	30	52	10	23
25 Hop, hoop, telegraph and other poles “		92				
26 Knees and futtocks Pcs.	90	93	41	21	1,762	949
Logs—						
27 Hemlock M. ft.	18	121	2	12	13	71
28 Oak “			35	247	13	127
29 All other “			1	7	1	8
Lumber—						
30 Battens Pos.			283	34		
31 Deals Std. H.	43	829	195	4,996	15	566
32 Deal ends “			5	86		
33 Laths, &c M.	250	358	252	381	82	105
34 Boards, &c M. ft.	1,029	8,738	1,526	11,688	4,726	14,693
35 Scantlings “	62	611	89	607	46	381
36 Staves, standard M.	29	402	67	638	144	1,024
37 Staves, other & headings “	10	50	198	995	208	1,548
38 All other “		279		22		25
39 Masts and spars Pcs.	325	549	54	397	337	1,062
40 Sleepers “			4	1	42	18
41 Shingles M.	1,484	2,267	1,312	1,797	1,502	2,328
42 Shooks No.	668	871		24		

Forest wealth of Canada.

Navigation Returns)—Continued.

the Canadian Forest in three-year periods—Continued.

THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
			8			102	2,435	1
								2
520	656	218	342	106	198	229	415	3
14,127	146,914	16,122	172,498	13,039	110,246	14,242	139,756	4
17	183	220	2,307	214	1,393	269	1,773	5
14	182	5	117	2	46	82	688	6
3	30	282	1,014	277	1,154		139	7
	558		960		8		6,093	8
369	825	2,145	1,722	780	2,136	631	2,666	9
								10
7,341	14,044	13,260	26,755	5,556	8,957	8,396	12,621	11
	4,594		11,816		26,446		30,342	12
								13
						13	1,260	13
								14
	573		372		141		75	15
								16
	168,713		218,092		150,819		198,330	16
								17
								18
								19
								20
								21
								22
								23
	106		46		5		20	23
14	39	35	85	24	55	13	24	24
								25
343	132	467	160	100	50	188	72	26
49	327	29	115	27	85	31	118	27
								28
		5	78					29
								30
15	446							31
								32
195	282	598	735	168	375	45	86	33
2,077	18,924	1,707	16,877	1,754	16,995	1,243	12,398	34
184	1,628	2	29			33	311	35
230	1,919	142	1,202	58	484	321	2,370	36
79	797	204	1,559				631	37
	74		98					38
271	1,314	63	607	78	342	69	293	39
								40
1,409	1,604	1,871	2,390	2,300	2,605	279	352	41
3,280	358	2,671	17	250	24			42

TABLE 8 (a)—(From Trade and
AVERAGE of Total Exports of the Products of

ARTICLES.		AVERAGE EXPORTS FOR					
		1877-79.		1880-82.		1883-85.	
		Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>St. Pierre—Concluded.</i>			\$		\$		\$
Timber, square—							
1	Birch..... Tons.	125	630	27	109	40	196
2	Elm..... “	3	38				
3	Oak..... “	18	155	9	169	40	733
4	Pine, white..... “		1	53	187		
5	do red..... “			2	28	7	92
6	All other..... “		4	15	363	3	59
7	Other wood.....		468		219		33
8	Total.....		16,716		23,087		24,060
<i>Danish West Indies.</i>							
Lumber—							
9	Laths, &c..... M.			8	22		
10	Deals..... Std. H.					1	28
11	Boards..... M. ft.	204	2,118	288	2,914	106	1,327
12	Scantlings..... “					57	617
13	All other.....						31
14	Masts and spars..... Pcs.	10	396			8	12
15	Shingles..... M.	37	83	2	23	61	169
16	Shooks.....						
17	Total.....		2,597		2,959		2,184
<i>St. Domingo and Hayti.</i>							
Lumber—							
18	Boards, &c..... M. ft.	665	8,206	687	9,252	262	3,383
19	Scantlings..... “	27	324	15	129	22	265
20	Masts and spars..... Pcs.	17	170	13	41	5	25
21	Oars..... Prs.			60	98		
22	Shingles..... M.	349	929	276	444	175	312
23	Other wood.....		200				
24	Total.....		9,829		9,964		3,985
<i>*South America.</i>							
25	Ashes..... Brls.	17	449				
Lumber—							
26	Deals..... Std. H.	61	2,135	2,561	139,189		
27	Deal ends..... “	4	66	1	13		
28	Laths, &c..... M.	279	1,846	154	1,592		
29	Boards, &c..... M. ft.	17,496	256,268	14,756	190,680		
30	Scantlings..... “	225	2,202	591	6,684		
31	Staves, other and head-ings..... M.			1	50		
32	Masts and spars..... Pcs.	192	902	109	169		
33	Shooks.....		108		43		
Timber, square—							
34	Oak..... Tons.	22	551				
35	All other..... “			50	183		
36	Total.....		264,527		338,603		

* Details of the countries which formed South America up to 1882 are given separately after that year.

Forest wealth of Canada.

Navigation Returns)—Continued.

the Canadian Forest in three-year periods—Continued.

THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
26	135	27	140	9	36	29	116	1
18	220		7					2
		3	55					3
		4	113					4
	47		164				20	5
								6
								7
	28,352		24,477		21,056		16,811	8
								9
3	5							10
88	939	210	3,082	226	3,532	28	378	11
								12
								13
1	4						\$ 104	14
174	416	331	857	395	755	266	610	15
	635		873		300		867	16
								17
	1,999		4,812		4,587		1,959	18
								19
47	653	44	576					20
		7	73					21
								22
36	54							23
								24
	707		649					25
								26
								27
								28
								29
								30
								31
								32
								33
								34
								35
								36

§ Staves, other and headings.

TABLE 8 (a)—(From Trade and
AVERAGE of Total Exports of the Products of

ARTICLES.	AVERAGE EXPORTS FOR					
	1877-79.		1880-82.		1883-85.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>Chili.</i>						
1 Firewood.....	Cords.				2	4
Lumber—						
2 Boards, &c.....	M. ft.				3,174	41,636
3 Deals.....	Std. H.					
4 Laths, &c.....	M.				17	48
5 Masts and spars.....	Pcs.				10	66
6 Total.....						41,754
<i>Brazil.</i>						
Lumber—						
7 Deals.....	Std. H.				311	13,889
8 Deal ends.....	"					
9 Boards, &c.....	M. ft.				521	7,387
10 Laths, &c.....	M.				5	52
11 Scantling.....	M. ft.				38	397
12 All other.....						
13 Masts and spars.....	Pcs.				17	54
14 Oars.....	Prs.				11	15
15 Shingles.....	M.				104	208
16 Shooks.....	No.					
Timber, square—						
17 Pine, white.....	Tons.					
18 Total.....						22,002
<i>Argentine Republic.</i>						
Lumber—						
19 Deals.....	Std. H.				5,294	318,175
20 Deal ends.....	"				7	247
21 Laths, &c.....	M.				169	1,056
22 Boards, &c.....	M. ft.				4,550	56,171
23 Scantlings, &c.....	"				201	2,200
24 All other.....						5
25 Masts and spars.....	Pcs.				329	1,234
26 Shooks.....	No.					
27 Total.....						379,088
<i>Uruguay.</i>						
28 Hop, hoop, telegraph and other poles.....						25
Lumber—						
29 Deals.....	Std. H.				1,884	104,879
30 Laths, &c.....	M.				322	3,502
31 Boards, &c.....	M. ft.				4,602	54,229
32 Scantlings, &c.....	"				693	7,906
33 All other.....						
34 Masts and spars.....	Pcs.				87	415
35 Shingles.....	M.					
36 Shooks.....	No.					
37 Timber, square, all other.....					11	77
38 Total.....						171,033

Forest wealth of Canada.

Navigation Returns)—*Continued.*

the Canadian Forest in three-year periods—*Continued.*

THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
.....								1
4,882	51,136	6,814	77,643	14,295	134,181	11,652	117,199	2
67	5,000	.....	.....	.....	.....	.....	.....	3
129	46	128	256	870	1,185	912	1,017	4
19	88	21	128	47	539	.....	.....	5
.....	56,270	.....	78,027	.....	135,905	.....	118,216	6
.....	.....	.....	.....	.....	.....	.....	.....	7
76	3,675	348	9,782	408	11,191	416	11,730	8
.....	.....	5	124	.....	.....	.....	.....	9
232	2,616	301	4,305	2,198	21,588	1,375	12,896	10
.....	.....	80	72	40	142	48	243	11
.....	.....	121	1,327	.....	.....	.....	6,286	12
.....	.....	.....	.....	.....	.....	.....	.....	13
.....	.....	.....	.....	.....	.....	.....	.....	14
.....	.....	.....	.....	31,200	2,771	.....	.....	15
.....	.....	.....	.....	.....	.....	.....	.....	16
.....	.....	84	780	12	138	.....	.....	17
.....	6,291	.....	16,390	.....	35,830	.....	31,155	18
.....	.....	.....	.....	.....	.....	.....	.....	19
5,360	336,453	478	25,937	.....	.....	.....	.....	20
.....	.....	.....	.....	16	124	152	1,194	21
803	8,586	389	6,478	5,578	53,304	13,247	133,562	22
3,365	35,723	9,914	111,531	1,383	15,063	2,697	27,210	23
947	11,774	1,616	17,489	.....	29,381	.....	194,802	24
.....	178,976	.....	294,644	.....	.....	.....	.....	25
313	2,175	17	175	.....	.....	.....	.....	26
13,848	1,395	210,644	11,878	6,590	2,678	14,000	1,151	27
.....	575,082	.....	468,132	.....	100,550	.....	357,919	28
.....	.....	.....	.....	.....	.....	.....	.....	29
.....	.....	.....	.....	.....	.....	.....	.....	30
769	35,781	.....	543	.....	.....	107	749	31
229	1,936	105	43,152	118	1,274	882	9,189	32
1,681	18,498	3,782	.....	.....	.....	555	4,457	33
977	10,459	.....	.....	.....	.....	.....	7,602	34
.....	18,962	.....	.....	.....	.....	.....	.....	35
.....	.....	12	13	95,700	8,503	14,200	1,300	36
.....	.....	.....	.....	.....	.....	.....	.....	37
.....	85,636	.....	43,708	.....	9,777	.....	23,297	38

TABLE 8 (a).—(From Trade and
AVERAGE of the Total Exports of the Produce of

ARTICLES.		AVERAGE EXPORTS FOR					
		1877-79.		1880-82.		1883-85.	
		Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>Peru.</i>			\$		\$		\$
Lumber—							
1	Deals Std. H.					5	143
2	Boards, &c. M. ft.					3,296	51,399
3	Scantlings "					13	133
4	Laths, &c. M.						
5	All other						
6	Total						51,675
<i>British Guiana.</i>							
7	Hop, hoop, telegraph and other poles		186				
Lumber—							
8	Laths, &c. M.			1	6	4	30
9	Deals Std. H.				6	5	143
10	Boards, &c. M. ft.	2,328	26,164	3,668	42,218	6,796	81,721
11	Scantlings "					3	26
12	Staves, standard M.	1	8	1	7	17	393
13	" other, and head-ings "	10	84		6	15	341
14	All other		54				
15	Logs, spruce M. ft.						
16	Masts and spars Pcs.	169	37	65	72	137	361
17	Oars Prs.			13	30	154	331
18	Shingles M.	461	980	45	83	288	505
19	Shooks		10		1,047		2,239
20	Other wood		32		52		260
21	Total		27,555		43,527		86,350
<i>Australia.</i>							
Lumber—							
22	Laths, &c. M.	943	3,076	944	3,336	4,427	15,738
23	Deals Std. H.	1,016	35,254	923	29,163	1,318	30,705
24	Deal ends "	40	671	39	859	49	711
25	Boards, &c. M. ft.	10,501	113,432	14,929	130,405	16,442	207,252
26	Scantlings "	2	10	30	206	14	144
27	Staves, standard M.	1	124				
28	" other, and head-ings "						
29	All other						544
30	Masts and spars Pcs.	381	1,781	2	18	12	262
31	Shingles M.	25	73	39	77		
32	Shooks						
33	Timber, square, all other Tons.						
34	Other wood		67		51		13
35	Total		154,488		164,115		255,009
<i>China.</i>							
36	Knees and futtocks Pcs.	11	72				
Lumber—							
37	Boards M. ft.	4,558	54,940	2,620	32,354	2,789	38,964
38	Laths M.	166	566	194	658	215	1,064

Forest wealth of Canada.

Navigation Returns)—*Continued.*

Canadian Forest in three-year periods—*Continued.*

THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
1,913	20,377	4,050	44,115	1,818	19,792	4,095	34,767	1
		25	17					2
			997					3
								4
								5
	20,377		45,129		19,792		34,767	6
								7
				50	80			8
								9
3,189	36,701	3,342	39,454	476	9,104	1,216	16,229	10
11	73							11
3	69	3	69					12
	7							13
			50		40			14
		4	155					15
22	88	14	89	19	320	14	90	16
								17
383	644	376	923	275	318	249	477	18
	293		475				160	19
	127		115				19	20
	38,002		41,330		9,862		16,956	21
								22
1,701	7,181	3,884	11,307	5,438	20,785	1,964	4,591	22
295	8,597	1,200	42,096	1,170	33,926	508	14,355	23
12	212	48	1,474	40	820	29	685	24
13,626	135,486	16,474	176,809	18,809	172,966	14,665	114,211	25
10	77	23	276					26
		60	888	26	230	60	480	27
								28
20	206							29
			3,353		22,768		14,243	30
								31
33	75					34	61	32
			355					33
		187	1,867					34
	8							35
	151,842		238,425		251,495		148,626	36
								37
4,031	46,423	3,086	38,323	747	7,656	963	9,184	38
310	1,066	116	492					39

TABLE 8 (a).—From Trade and
AVERAGE of the Total Exports of the Products of

ARTICLES.	AVERAGE EXPORTS FOR						
	1877-79.		1880-82.		1883-85.		
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
<i>China—Concluded.</i>			\$		\$		\$
1	Masts and spars..... Pcs.	270	3,458	67	757		
2	Shingles..... M.	143	426	194	453		
3	Other wood.....				12		
4	Total.....		59,462		34,234		40,028
<i>Africa.</i>							
Lumber—							
5	Deals..... Std. H.	482	12,916	941	26,253	1,282	36,176
6	Deal ends..... “	21	448	40	672	32	617
7	Boards, &c..... M. ft.	1,213	14,204	1,625	19,204	1,133	13,962
8	Scantlings..... “	42	423	5	279	97	699
9	Laths, &c..... M.	29	154	5	68	29	296
10	Staves, standard..... “	6	489			1	533
11	Staves, other & headings..... “	19	1,224	16	1,260	77	7,365
12	Masts and spars..... Pcs.	50	702	12	345	50	318
13	Shingles..... M.	3	7				
Timber, square—							
14	Ash..... Tons.			8	120		
15	Elm..... “			6	91		
16	Maple..... “			8	211		
17	Other timber..... “						
18	Other wood.....		20				
19	Total.....		30,587		48,513		59,966
20	Other Countries.....		28,620		17,995		39,811

EXPORTS of the

21	Ontario.....	3,396,393	6,543,924	7,605,820
22	Quebec.....	10,031,968	9,849,699	10,835,735
23	Nova Scotia.....	939,571	1,291,381	1,483,311
24	New Brunswick.....	4,453,057	4,802,164	5,116,381
25	Manitoba.....			121
26	British Columbia.....	295,716	261,474	376,090
27	Prince Edward Island.....	55,847	31,089	21,819
28	The Territories.....			

Forest wealth of Canada.

Navigation Returns)—Continued.

the Canadian Forest in three-year periods—Continued.

THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
		7	305	68	601	44	614	1
3	7		585		265		150	2
								3
	47,496		39,705		8,522		9,948	4
610	15,644	139	5,015	142	3,613	295	7,986	5
26	442	6	152					6
1,030	15,949	839	13,706	1,748	19,086	217	5,518	7
134	1,455	13	172					8
173	406	416	648	515	1,113			9
1	311							10
29	2,417							11
30	129	5	12			16	889	12
98	140	17	17					13
						24	367	14
								15
						64	1,068	16
	53							17
								18
	36,946		19,722		23,812		15,828	19
	33,775		16,061		17,260		40,891	20

Forest by Provinces.

7,052,752	8,474,251	8,340,915	9,947,925	21
9,149,048	10,087,240	8,610,849	9,852,543	22
1,504,866	1,739,981	1,664,778	1,823,960	23
4,651,451	5,174,245	4,582,529	5,539,666	24
337	22	184	1,670	25
290,773	389,970	425,273	454,994	26
15,394	9,041	8,785	12,033	27
	45	357		28

TABLE 8 (a)—(From Trade and
AVERAGE of the Total Exports of the Products of

ARTICLES.	AVERAGE EXPORTS FOR					
	1877-79.		1880-82.		1883-85.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
		\$		\$		\$
1 Ashes, leached and other.....		4,656		14,312		31,664
2 do pot and pearl..... Brls.	15,700	338,010	11,100	307,949	7,099	216,616
3 Tanner's bark..... Cords.	82,820	296,648	102,052	451,560	71,991	361,881
4 Basswood, butternut and hickory..... M. ft.	1,263	23,718	1,746	31,014	1,438	31,206
5 Firewood..... cords	163,261	318,894	156,376	324,947	156,281	353,129
6 Hop, hoop, telegraph and other poles.....		38,096		177,872		164,342
7 Knees and futtocks..... Pes.	27,360	12,955	17,480	22,685	24,475	20,657
8 Lathwood..... Cords.	1,613	13,738	932	6,282	474	3,098
9 Handspikes..... Pes.	1,813	1,095				
Logs—						
10 Hemlock..... M. ft.	1,392	4,874	4,430	13,118	4,295	18,448
11 Elm..... "						
12 Oak..... "	1,122	12,146	3,875	52,440	1,732	25,296
13 Spruce..... "	3,527	12,994	5,449	19,179	8,081	37,375
14 Pine..... "	223	1,212	2,009	16,683	1,406	9,708
15 Tamarac..... "	9	52	133	1,247	5	48
16 All other..... "	14,749	56,625	23,675	101,762	30,499	148,658
Lumber—						
17 Battens..... Pes.	53,078	10,938	49,011	11,584	16,179	7,158
18 Deals..... Std.H.	240,150	7,164,123	254,234	7,737,472	271,307	8,394,861
19 Deal ends..... "	13,052	290,042	10,164	265,468	11,583	303,949
20 Laths, &c..... M.	155,449	184,851	208,074	242,403	245,906	402,636
21 Boards, &c..... M. ft.	447,255	4,450,201	704,859	7,336,048	683,558	8,491,621
22 Scantlings, &c..... "	24,352	179,497	27,975	214,651	18,200	137,667
23 Staves, standard..... M.	1,390	277,552	1,056	140,1-2	918	152,987
24 Staves, other & headings..... "	5,373	144,707	18,094	132,641	54,306	331,759
25 All other..... "		50,862		56,424		152,363
26 Masts and spars..... Pes.	22,414	46,297	45,709	41,284	24,427	44,239
27 Oars..... Prs.	824	1,365	1,391	828	422	954
28 Shingles..... M.	80,957	161,585	117,997	245,458	117,836	281,567
29 Shingle bolts..... Cords.	381	953	1,134	3,747	705	2,816
30 Sleepers..... Pes.	1,004,212	216,934	2,448,314	384,031	1,448,374	391,049
31 Stave bolts..... Cords.	13,824	28,032	76,597	114,934	51,242	147,177
32 Shooks.....		120,485		74,419		37,059
Timber, square—						
33 Ash..... Tons.	6,049	59,284	7,202	82,314	8,783	111,622
34 Birch..... "	31,615	213,357	32,236	218,233	33,185	247,193
35 Elm..... "	18,657	216,766	20,390	247,222	19,254	252,656
36 Oak..... "	65,863	1,068,749	50,721	876,084	45,832	911,409
37 Maple..... "	297	2,702	399	5,223	594	7,140
38 Pine, white..... "	282,250	2,737,194	227,705	2,335,604	219,379	2,771,776
39 do red..... "	38,218	273,019	26,449	216,812	22,442	181,257
40 All other..... "	5,475	65,666	7,655	98,522	7,001	101,901
41 Posts, cedar, tamarack, &c.....						
42 Pulp wood.....						
43 Other wood.....		71,683		157,082		152,334
44 Average of Total Exports.....		19,172,557		22,779,730		25,439,276
45 *Foreign produce.....		578,131		844,540		1,048,746

* Included in above totals. † Including piles and pile timber, valued at \$63,957.

Forest wealth of Canada.

Navigation Returns)—*Concluded.*

the Canadian Forest in three-year periods—*Concluded.*

THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
.....	35,949	.....	31,541	.....	40,169	.....	59,126	1
4,934	127,091	3,163	89,195	2,556	74,489	2,097	61,760	2
52,738	234,723	37,759	169,766	43,856	217,552	41,872	205,495	3
635	14,256	1,878	39,023	2,628	54,906	801	26,150	4
154,711	321,138	146,185	312,066	179,158	370,301	181,417	354,429	5
.....	115,647	.....	111,419	.....	83,581	.....	114,030	6
19,134	11,043	27,613	23,996	16,308	14,169	22,195	14,056	7
152	1,021	802	1,699	.....	.....	2,590	6,491	8
.....	.....	.....	.....	.....	.....	.....	.....	9
5,250	21,646	3,890	15,605	5,084	21,505	6,042	27,496	10
7,305	35,506	27,726	145,731	34,116	209,709	33,615	219,065	11
1,148	18,781	2,037	37,683	1,153	21,297	1,348	21,087	12
18,602	90,080	24,990	151,403	23,434	141,168	21,103	123,254	13
3,229	25,856	26,561	223,065	73,963	651,540	127,101	1,057,345	14
.....	.....	.....	.....	.....	.....	.....	.....	15
32,940	163,594	15,746	89,793	12,132	71,704	9,422	69,307	16
.....	10,209	.....	5,089	.....	7,918	.....	3,095	17
264,393	7,935,427	282,326	8,436,418	244,688	7,034,633	265,467	8,180,602	18
11,128	280,599	10,654	288,148	12,051	290,708	12,190	295,478	19
288,761	446,879	332,075	495,597	318,153	474,717	367,427	608,336	20
629,032	7,433,189	756,024	8,562,106	740,786	8,353,055	878,866	9,904,491	21
23,184	190,629	21,095	171,049	17,561	138,478	22,203	191,127	22
632	39,756	279	11,752	103	2,365	842	5,387	23
61,997	294,702	87,210	401,765	93,688	460,546	.....	609,677	24
.....	770,182	.....	792,703	.....	390,249	.....	902,363	25
19,519	27,624	23,085	19,563	11,198	12,688	1,805	7,933	26
.....	.....	.....	.....	.....	.....	.....	.....	27
137,563	286,867	242,961	511,880	347,867	719,548	417,116	849,471	28
285	1,695	204	1,759	.....	3	241	1,786	29
1,933,979	445,952	1,905,291	390,256	1,467,839	261,036	1,411,901	215,150	30
49,700	118,955	46,801	122,007	33,292	91,784	37,567	103,365	31
.....	158,826	.....	283,804	.....	189,399	.....	136,252	32
.....	.....	.....	.....	.....	.....	.....	.....	33
5,496	67,559	6,060	78,425	3,511	43,937	5,511	64,126	33
25,130	178,309	24,450	199,847	29,363	235,277	26,698	212,090	34
13,444	170,109	16,361	219,525	16,213	219,762	15,504	208,011	35
30,385	581,113	32,135	674,749	23,298	480,216	27,102	580,745	36
165	1,820	651	9,151	364	4,103	344	4,319	37
138,329	1,609,295	157,245	2,260,517	123,994	1,645,711	105,789	1,481,155	38
12,507	105,498	10,055	98,804	7,131	62,041	8,044	78,130	39
3,649	89,044	4,343	74,446	5,123	60,240	2,678	36,248	40
.....	.....	.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	105,772	.....	70,485	41
.....	.....	.....	.....	.....	219,458	.....	386,092	42
.....	204,069	.....	196,444	.....	158,941	.....	+ 137,786	43
.....	.....	.....	.....	.....	.....	.....	.....	44
.....	22,664,620	.....	25,874,783	.....	23,633,675	.....	27,632,791	44
.....	1,723,897	.....	1,373,410	.....	1,351,931	.....	1,272,881	45

TABLE 8 (b).—(From Trade

AVERAGE of Total Export by Canada of Manufactures of Wood for the periods

ARTICLES.	AVERAGE OF TOTAL EXPORTS						
	1877-79.		1880-82.		1883-85.		
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
<i>Great Britain.</i>							
1 Ships	Tons.	23,887	\$ 837,242	9,687	\$ 277,355	6,516	\$ 156,274
2 Barrels, empty	No.						
3 Furniture, household			8,474		4,532		11,099
4 Doors, sashes and blinds			8,248		19,126		36,888
5 Matches and match splints							
6 Mouldings, trimmings, &c.							
7 Pails, tubs, churns, &c.							927
8 Spool wood and spools							
9 Wood pulp							
10 Other articles			86,240		152,983		208,341
11 Total			94,204		453,996		413,529
<i>United States.</i>							
12 Charcoal							
13 Ships	Tons.	377	10,250	1,201	14,143	229	4,073
14 Barrels, empty	No.						
15 Furniture, household			97,934		106,026		134,221
16 Doors, sashes and blinds			12,809		8,139		2,052
17 Matches and match splints							
18 Mouldings, trimmings, &c.							
19 Pails, tubs, churns, &c.							1,417
20 Spool wood and spools							
21 Wood pulp							
22 Other articles			60,891		141,790		190,762
23 Total			181,884		270,098		332,525
<i>Newfoundland.</i>							
24 Ships	Tons.	812	24,933	873	23,720	481	17,363
25 Barrels, empty	No.						
26 Furniture, household			1,049		452		479
27 Doors, sashes and blinds			256		113		342
28 Matches and match splints							
29 Mouldings, trimmings, &c.							
30 Pails, tubs, churns, &c.							115
31 Wood pulp							
32 Other articles			20,016		9,417		11,613
33 Total			46,254		33,702		29,912
<i>British West Indies.</i>							
34 Ships	Tons.	444	12,989	263	7,855	148	5,217
35 Furniture, household			138		963		357
36 Doors, sashes and blinds			4				
37 Matches and match splints							
38 Mouldings, trimmings, &c.							
39 Pails, tubs and churns							
40 Other articles			2,832		6,042		8,250
41 Barrels, empty	No.						
42 Total			15,963		14,860		13,824

Forest wealth of Canada.

and Navigation Returns.)

1877-91, inclusive, together with Exports for the years 1892 and 1893.

FOR THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
3,091	80,045	3,298	31,769	8,958	92,500	8,479	115,633	1
3,771	1,564	6,725	1,938			14,615	3,512	2
	22,355		31,635		19,057		33,662	3
	38,776		59,567		115,967		109,099	4
			78,349		162,028		159,224	5
			4,465		4,339		15,122	6
	5,047		7,895		7,058		10,811	7
			54,846		92,962		67,939	8
			153				1,640	9
	123,613		98,572		87,621		88,571	10
	271,400		369,189		581,512		605,213	11
			29,777		46,817		48,700	12
404	3,250	388	6,986	699	8,000		49,534	13
17,901	7,479	75,182	39,187	83,488	63,711	76,399	126,136	14
	200,196		138,591		45,830		1,441	15
	1,590		7,312		2,697		35,818	16
			11,867		28,159		2,060	17
			2,423		1,419		665	18
	4,654		3,872		365		15,184	19
			8,340		18,352		454,253	20
			142,588		355,303		59,230	21
	221,149		162,763		110,952			22
	438,318		553,706		681,605		792,961	23
			4,733	60	1,200		2,145	24
442	15,763	178	3,961	6,151	2,434	5,937	14,983	25
3,881	1,571	8,085	1,093		1,634		12,148	26
	443		25		12		7,019	27
	158		3,498		3,678		3,424	28
			420		339		60	29
			2,829		54		33,151	30
	671		6,874		7,074			31
	15,134		12,651					32
	33,740		36,084		16,425		72,930	33
			14,587			354	14,450	34
181	5,100	489	1,046		1,381		2,073	35
	598		29		286		500	36
			602		2,098		2,270	37
			317		25		189	38
			31				2,893	39
	2,224		3,663		3,464			40
		92	44					41
	7,923		20,319		7,254		22,375	42

TABLE 8 (b).—(From Trade and
AVERAGE of Total Export of Manufactures of Wood, 1877-91,

ARTICLES.	AVERAGE OF TOTAL EXPORTS					
	1877-79.		1880-82.		1883-85.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>Spanish West Indies.</i>			\$		\$	\$
1 Ships	Tons. 299	7,267				
2 Furniture, household.				13		63
3 Other articles.		146		615		969
4 Total		7,413		628		1,032
<i>Danish West Indies.</i>						
5 Ships	Tons.		162	1,167		
6 Furniture, household.		25				
7 Pails, tubs, churns, &c.						48
8 Other articles.		11		22		
9 Total		36		1,189		48
<i>French West Indies.</i>						
10 Ships	Tons. 58	3,967	78	2,945		
11 Other articles.				4		
12 Total		3,967		2,949		33
<i>Dutch West Indies.</i>						
13 Ships	Tons.					
<i>British East Indies.</i>						
14 Ships	Tons.		326	1,667	116	4,056
15 Furniture.						
16 Total				1,667		4,056
<i>Norway and Sweden.</i>						
17 Ships	Tons 1,068	23,921	1,885	37,963	5,617	87,091
18 Other articles.						
19 Total		23,921		37,963		87,091
<i>Denmark.</i>						
20 Ships	Tons. 228	4,920	377	4,373	148	1,000
21 Other articles.						
22 Total		4,920		4,373		1,000
<i>St. Pierre.</i>						
23 Ships	Tons. 160	3,862	111	2,725	247	8,153
24 Barrels, empty.	No.					
25 Furniture, household.		123		7		10
26 Doors, sashes and blinds.						

Forest wealth of Canada.

Navigation Returns)—*Continued.*

inclusive, together with Exports for years 1892-93—*Continued.*

FOR THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
220	2,876					109	5,600	1
	1,279		3,947		308		1,674	2
	4,155		3,947		308		7,274	3
								4
18	300							5
	32		94					6
	470		55				50	7
								8
	802		149				50	9
								10
		128	3,467				200	11
			3,467				200	12
								13
				85	2,500			14
								15
	87		68					16
	87		68					17
5,337	65,979	12,188	220,769	17,731	253,609	18,639	179,168	18
							353	19
	65,979		220,769		253,609		179,521	20
								21
126	3,333							22
						86		23
	3,333					86		24
								25
584	23,150	348	12,300	814	25,930	215	14,100	26
218	71	409	122	9	8	2,032	649	27
	291				98		12	28
			26		50		25	29

TABLE 8 (b).—(From Trade and
AVERAGE of Total Export of Manufactures of Wood, 1877-91,

ARTICLES.	AVERAGE OF TOTAL EXPORTS					
	1877-79.		1880-82.		1883-85.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>St. Pierre—Concluded.</i>						
1 Matches and match splints		\$		\$		\$
2 Pails, tubs and churns						
3 Other articles		1,360		1,230		640
4 Total		5,345		3,962		8,803
<i>Australia.</i>						
5 Ships	Tons.	517	15,661	54	2,000	808
6 Furniture, household			252			53
7 Doors, sashes and blinds			1,800		893	6,749
8 Mouldings and trimmings						
9 Pails, tubs, churns, &c						
10 Other articles			1,662		787	1,580
11 Total			19,375		3,680	24,115
<i>British Guiana.</i>						
12 Ships	Tons.	44	2,833	40	1,450	
13 Barrels, empty	No.					
14 Furniture						217
15 Doors, sashes, blinds						
16 Mouldings and trimmings						
17 Other articles			79		105	685
18 Total			2,912		1,555	902
<i>Labrador.</i>						
19 Other articles			2,977		249	268
<i>South America.</i>						
20 Ships	Tons.	170	6,477	60	2,050	
21 Other articles					1,057	
22 Total			6,477		3,107	
<i>Uruguay.</i>						
23 Ships	Tons.					
24 Other articles					94	4,208
25 Total					94	4,208
<i>U. S. of Colombia</i>						
26 Ships	Tons.					
27 Other articles					1,175	16,023
28 Total					1,175	16,023
<i>Chili.</i>						
29 Ships	Tons.					485
						2,700

Forest wealth of Canada.

Navigation Returns)—Continued.

inclusive, together with Exports for years 1892-93—Continued.

FOR THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
.....	7	.....	44	.....	221	.....	79	1
.....	3,479	.....	1,584	.....	741	.....	438	2
.....	26,998	.....	14,076	.....	27,048	.....	15,278	3
.....		.....		.....		.....		4
.....		.....		.....		.....		5
50	1,333	.....	991	.....	82	.....	60	6
.....	559	.....	993	.....		.....		7
.....	3,476	.....	834	.....		.....		8
.....	59	.....	25	.....		.....		9
.....	214	.....	301	.....	65	.....		10
.....	5,641	.....	3,144	.....	147	.....	60	11
.....		.....		.....		.....		12
.....		26	1,500	.....		.....		13
6	3	124	52	.....		.....		14
.....		.....	39	.....		.....		15
.....		.....	177	.....		.....		16
.....		.....		.....	45	.....		17
.....	762	.....	1,051	.....	935	.....	778	18
.....	765	.....	2,819	.....	980	.....	778	19
.....		.....		.....		.....		20
.....		.....	64	.....		.....		21
.....		.....		.....		.....		22
.....		.....		.....		.....		23
.....		.....		.....		.....		24
.....		.....		.....		.....		25
.....		.....		.....		.....		26
35	1,380	.....	1,667	.....		.....		27
.....	102	.....	527	.....	44	.....	410	28
.....	1,482	.....	2,194	.....	44	.....	410	29
.....		.....		.....		.....		30
.....		33	1,667	.....		.....		31
.....		.....	527	.....	44	.....	410	32
.....		.....	2,194	.....	44	.....	410	33
.....		.....		.....		.....		34
.....		.....		.....		.....		35
.....		.....		.....		.....		36
.....		.....		.....		.....		37
.....		.....		.....		.....		38
.....		.....		.....		.....		39
861	9,498	2	900	.....		.....		40

TABLE 8 (b)—(From Trade and
AVERAGE of Total Export of Manufactures of Wood, 1877-91,

ARTICLES.	AVERAGE OF TOTAL EXPORTS					
	1877-79.		1880-82.		1883-85.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>Argentine Republic.</i>						
1 Ships	Tons.				636	15,163
2 Other articles						1,739
3 Total						16,902
<i>Brazil.</i>						
4 Ships	Tons.		169	4,333	289	5,760
5 Other articles				128		33
6 Total				4,461		5,793
<i>Central American States.</i>						
7 Ships	Tons.	55	233			
8 Furniture						
9 Other articles						7
10 Total			233			7
<i>British Honduras.</i>						
11 Ships	Tons.					
<i>Portuguese Poss. in Africa.</i>						
12 Ships	Tons.					
13 Other articles						
14 Total						
<i>France.</i>						
15 Ships	Tons.		14	133	581	25,821
16 Furniture			289			
17 Mouldings and Trimmings						
18 Other articles			146	33		31
19 Total			435	166		25,852
<i>Germany.</i>						
20 Ships	Tons.		399	2,211	815	20,583
21 Charcoal						
22 Furniture						
23 Pails, tubs and churns						
24 Other articles			17	102		2
25 Total			17	2,313		20,585
<i>Spain.</i>						
26 Ships	Tons.	142	6,067	30	1,333	
27 Furniture						
28 Other articles			180			
29 Total			6,247	1,333		

Forest wealth of Canada.

Navigation Returns)—*Continued.*

inclusive, together with Exports for 1892-93—*Continued.*

FOR THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1892.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
489	8,680	1,157	21,610	984	19,680			1
	1,649		694					2
	10,329		22,304		19,680			3
				1,000	15,392	302	5,000	4
					15,392		5,000	5
								6
								7
	17							8
								9
	17							10
		38	733					11
		25	542					12
	24							13
	24		542					14
		180	4,207					15
	83		22		15			16
					675			17
	14		100		25			18
	97		4,329		715			19
								20
336	4,586	798	20,164					21
			1,208					22
	196		38				8	23
	2		7					24
	203		525		834		126	25
	4,987		21,942		834		134	26
		210	4,420	3,071	50,736			27
			4					28
			4,424		50,736			29

TABLE 8 (b).—(From Trade and
AVERAGE of Total Export of Manufactures of Wood, 1877-91,

ARTICLES.		AVERAGE OF TOTAL EXPORTS.					
		1877-79.		1880-82.		1883-85.	
		Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>Holland.</i>			\$		\$		\$
1	Ships Tons.	886	9,833	24	500	176	1,579
<i>China.</i>							
2	Ships Tons.			105	3,000		
3	Furniture						
4	Doors, sashes and blinds						
5	Other articles						
6	Total				3,000		
<i>Japan.</i>							
7	Ships Tons.			61	1,900		
8	Furniture						
9	Doors, sashes and blinds						
10	Other articles						
11	Total				1,900		
<i>Italy.</i>							
12	Ships Tons.					66	2,267
<i>Belgium.</i>							
13	Ships Tons.					329	1,667
14	Furniture						
15	Pails, tubs and churns						
16	Other articles						
17	Total						1,667
<i>New Zealand.</i>							
18	Ships Tons.	248	8,433	213	5,500	354	14,467
19	Furniture		83				
20	Other articles						
21	Total		8,516		5,500		14,467
<i>Russia.</i>							
22	Ships Tons.	163	1,833	222	2,027		
<i>Africa.</i>							
23	Furniture				49		
24	Doors, sashes and blinds				83		692
25	Mouldings and trimmings						
26	Other articles				598		814
27	Total				730		1,506

Forest wealth of Canada.

Navigation Returns)—*Continued.*

inclusive, together with Exports for 1892-93—*Continued.*

FOR THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$	
						686	5,840	1
177	2,000							2
	33							3
	44							4
			7				50	5
	2,077		7				50	6
						1,143	3,000	7
	100		57		85		13	8
	100							9
	239		88		15			10
	439		95		100		3,013	11
		232	2,733	298	2,200			12
								13
	85							14
	77							15
	11		170					16
	173		170					17
								18
	20		131		25		250	19
								20
	20		131		25		250	21
185	3,333	196	3,417	2,699	35,000	863	9,000	22
								23
			1,475		4,132		7,161	24
			394		241		2,169	25
			144					26
			2,013		4,373		9,330	27

TABLE 8 (b).—(From Trade and
AVERAGE of Total Export of Manufactures of Wood, 1877-91,

ARTICLES.	AVERAGE OF TOTAL EXPORTS					
	1877-79.		1880-82.		1883-85.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<i>Portugal.</i>						
1 Ships Tons.	47	\$ 283			36	\$ 833
2 Furniture						
3 Other articles		3		133		19
4 Total		286		133		852
<i>Hayti.</i>						
5 Ships Tons.	74	2,270	130	3,033		
6 Barrels, empty No.						
7 Other articles		133				
8 Total		2,403		3,033		
<i>Greece.</i>						
9 Ships Tons.			77	2,333		
<i>Sandwich Islands.</i>						
10 Ships Tons.						
11 Other articles						
12 Total						
13 Other countries		169				
S U M						
14 Charcoal Tons.	33,616	1,114,071	16,572	405,885	18,147	389,857
15 Ships No.						
16 Barrels, empty		108,369		112,209		146,499
17 Furniture, household		23,192		28,355		42,823
18 Doors, sashes and blinds						
19 Matches and match splints						
20 Mouldings and trimmings						2,459
21 Pails, tubs and churns						
22 Spool wood and spools						
23 Wood pulp						
24 Other articles		176,786		316,660		446,368
25 * Total produce		1,422,418		863,109		1,028,006
26 Not produce		11,858		16,572		21,626

* Foreign produce included.

Forest wealth of Canada.

Navigation Returns)—*Concluded.*

inclusive, together with Exports for 1892-93—*Concluded.*

FOR THE PERIODS OF				EXPORTS FOR YEARS				
1886-88.		1889-91.		1892.		1893.		
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$				\$		\$	
.....			17					1
.....	8							2
.....	8		17					3
.....								4
.....								5
.....		10	3					6
.....								7
.....		10	3					8
.....								9
.....						393	7,000	9
.....								10
83	2,000		5					11
.....	2,000		5					12
.....	760		1		874		5,125	13

M A R Y.

.....			30,986	.....	46,817	.....	48,700	14
12,695	233,368	18,913	356,070	36,399	506,747	31,317	363,916	15
25,777	10,688	90,627	45,308	89,648	66,153	98,963	55,840	16
.....	225,315		173,733		68,162		177,197	17
.....	44,145		69,604		123,144		130,349	18
.....			94,316		196,184		204,410	19
.....			8,852		7,083		23,164	20
.....	10,550		14,796		7,477		11,476	21
.....			63,186		111,314		33,123	22
.....			149,616		355,303		455,893	23
.....	370,576		286,860		213,063		187,724	24
.....								25
.....	894,642		1,293,327		1,701,447		1,741,792	25
.....	40,105		68,352		61,460		48,186	26

TABLE 8 (c)—(From Trade and
AVERAGE of Total Imports by Canada of certain Articles of Wood, and Manufac-

ARTICLES.		AVERAGE OF TOTAL			
		1877-79.		1880-82.	
		Quantity.	Value.	Quantity.	Value.
<i>Great Britain.</i>			\$		\$
1	Barrels containing petroleum or its products. No.				
2	do linseed oil "				
3	do salted meats "				
4	Furniture, all kinds.		9,119		9,291
5	Mouldings, plain and gilded.				
6	Woodenware, pails, tubs and churns, &c.				820
7	Wood manufactures, n.e.s.		17,989		40,365
8	Lumber and timber, n.e.s.		164		191
Lumber—					
9	Cherry, chestnut, mahogany, walnut, whitewood, &c. M. ft.		668		128
10	Oak "			11	329
11	Pitch pine "			76	1,328
12	African teak "				14
13	Redwood "				
14	White ash "				
15	Spanish cedar "				
16	Planks and boards.				
17	Logs and round unmanufactured timber		158		165
18	Pulp wood				
19	Veneers				
20	Total		28,098		52,631
<i>United States.</i>					
21	Barrels containing petroleum or its products. No.				
22	do linseed oil "				
23	do salted meats "				
24	Furniture, all kinds.		300,486		128,906
25	Coffins and caskets of any material.				99
26	Hubs, spokes, fellos and parts of wheels rough hewn and sawn only		31,413		10,858
27	Mouldings, plain and gilded				
28	Shingles M.	1,807	3,403	14,206	28,215
29	Woodenware, pails, churns, tubs, &c.				20,878
30	Wood manufactures, n.e.s.		329,729		513,258
31	Lumber and timber, n.e.s.		310,626		302,206
32	Veneers of wood		7,134		
33	Wood pulp				
34	Fellos, hickory, rough—sawn to shape.				
35	Hickory billets, when imported for the manufacture of tool handles.				
36	Logs, and round unmanufactured timber, n.e.s.		127,738		418,612
Lumber—					
37	Boxwood. M. ft.		168,300	41	2,067
38	Cherry, chestnut, gumwood, hickory and whitewood.		*	*	*
39	Mahogany "		*	40	4,517
40	Oak "			1,590	49,961
41	Pitch pine "		*	3,434	69,439
42	Redwood "				
43	Rosewood "		*		330
44	Spanish cedar. "			122	4,149
45	Sycamore "				
46	Amaranth and cocobora.				
47	Walnut. "		*	3,790	†189,275
48	Ash, white. "				
49	Hickory, sawn to shape for spokes of wheels.				
50	African teak, black heart ebony, lignum vitæ, &c. M. ft.				33

* Included in boxwood.

† Whitewood included.

Forest wealth of Canada.

Navigation Returns).

tures of, for the Periods 1877-91, inclusive, together with Imports for 1892-93.

IMPORTS FOR THE PERIODS OF						IMPORTS.				
1883-85.		1886-88.		1889-91.		1892.		1893.		
Quantity	Value.	Quantity	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$		\$	
		46	78	21	41	110	155	44	85	1
		11	11	10,233	10,640	17,215	21,458	13,906	16,217	2
	17,476		17,847		23,816		47,903		44,070	3
	19		394		286		769		1,026	4
	875		395		130		6		16	5
	63,992		39,126		23,498		20,522		19,635	6
	236		127		25		79		41	7
					7			22	3,773	8
	13		25		202				11	9
1	54	11	222	3	201	6	380			10
7	547	11	245	18	1,201		700			11
2	238	7	219	50	251			2	237	12
				8						13
			1		3			9	42	14
			84		56					15
	1,673		267		478		1		346	16
										17
										18
										19
	85,123		59,041		60,835		91,972		85,499	20
										21
4,116	5,529	110,141	164,568	122,128	191,824	136,204	211,997	145,436	227,849	22
				354	257	1,900	2,736	419	297	23
		22,288	21,670	65,911	64,940					24
	193,506		188,581		287,004		269,992		244,934	25
	4,598		3,870		2,850		5,559		7,383	26
			8,715		2,590		716		877	27
	12,135		28,741		43,135		51,695		42,738	28
13,992	1,419		8,258	2,172	2,527	962	855	982	1,631	29
	30,877	7,106	35,576		21,055		5,754		5,463	30
	24,146		422,754		387,957		296,110		261,737	31
	788,506		316,540		319,327		97,945		103,748	32
	389,850		13,773		47,236		54,933		47,983	33
					665		361		1,435	34
					12,356		7,377		14,220	35
			795		4,000		1,704		4,297	36
	651,922		369,416		491,492		231,591		266,282	37
										38
135	5,697	1,229	37,478	55	2,169	6	231		4	39
				3,666	102,274	4,121	119,287	5,961	186,849	40
	14,561	156	21,267	241	24,226		33,533	155	22,004	41
4,255	109,191	2,531	71,072	7,196	145,673	10,630	242,713	9,859	195,731	42
5,415	110,070	2,802	54,379	6,627	135,336	6,569	120,448	2,967	58,091	43
			95	277	8,156	58	1,565	220	6,208	44
			1	333	131		131		150	45
8	554	14	552	3	10,768	977	20,085	466	11,710	46
249	8,653	319	9,237	497	99		2,350	55	1,366	47
				2			20	15	277	48
							273	15	277	49
4,622	+216,207	4,566	233,241	3,525	114,054	2,749	134,700	2,152	110,412	50
				43	1,078		5,168	306	8,715	51
	5,052		21,920		35,255		12,873		14,427	52
24	2,155	98	2,469	45	2,752		3,137	58	2,739	53

TABLE 8 (c).—(From Trade and
AVERAGE of Total Imports by Canada of certain

Articles.	AVERAGE OF TOTAL			
	1877-79.		1880-82.	
	Quantity.	Value.	Quantity.	Value.
<i>United States.—Concluded.</i>				
Lumber—		\$		\$
1 Hickory spokes, rough turned.				
2 Staves		19,511		
3 Firewood	3,326	9,036	122	307
4 Wood of the persimmon and dogwood trees.				
5 Total		1,307,376		1,743,100
<i>France.</i>				
6 Furniture, all kinds		588		546
7 Woodenware				230
8 Manufactures of wood, N.E.S.		2,640		8,378
9 Lumber and timber				
10 Mouldings				
11 Veneers of wood				
12 Total		3,228		9,154
<i>Germany.</i>				
13 Furniture, all kinds		77		259
14 Mouldings				
15 Woodenware				126
16 Manufactures of wood, N.E.S.		1,095		14,223
17 Veneers of wood				
18 Wood pulp				
19 Total		1,172		14,608
<i>Belgium.</i>				
20 Furniture, all kinds		43		52
21 Mouldings				
22 Manufactures of wood, N.E.S.				418
23 Total		43		470
<i>China.</i>				
24 Furniture		129		51
25 African teak, &c. M. ft.				
26 Woodenware				2
27 Manufactures of wood, N.E.S.		342		450
28 Lumber and timber, N.E.S.				15
29 Total		471		518
<i>Japan.</i>				
30 Furniture				26
31 Woodenware				
32 Manufactures of wood, N.E.S.		319		48
33 Total		319		74

Forest wealth of Canada.

Navigation Returns.)

articles of Wood and Manufactures, &c.—*Continued.*

IMPORTS FOR THE PERIODS OF						IMPORTS.				
1883-85.		1886-88.		1889-91.		1892.		1893.		
Quantity	Value.	Quantity	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$		\$	
					18,575		57,190		64,027	1
2,482	13,810	1,232	4,264	6,243	22,976	3,557	14,016	5,355	20,680	2
			66		373		51		451	3
	2,588,437		2,039,297		2,503,673		2,006,715		1,944,715	4
										5
	647		1,036		1,396		8,924		2,528	6
	21,624		5,258		3,333		19		3,385	7
					3		2,117		27	8
							116		172	9
									172	10
	22,271		6,294		4,732		11,176		6,112	11
										12
	1,407		1,676		3,018		3,610		16,998	13
	230		21		13		14		14	14
	27,297		13,911		8,349		7,635		9,578	15
							11		882	16
									882	17
	28,934		15,608		11,880		11,270		27,458	18
										19
	10		544		29		285		125	20
			100		23				166	21
	111		1,152		240		316		166	22
									291	23
	121		1,796		292		601		291	23
										24
	282		1,182		719		1,052		624	24
								3	505	25
	3								714	26
	1,209		1,237		964		631		714	27
			3						1,843	28
	1,494		2,422		1,683		1,683		1,843	29
										30
	299		3,182		3,098		3,345		2,946	30
					53				20	31
	582		5,847		1,429		1,769		568	32
									3,534	33
	881		9,029		4,580		5,114		3,534	33

TABLE 8 (c)—(Trade and
AVERAGE of Total Imports by Canada of certain

ARTICLES.		AVERAGE OF TOTAL			
		1877-79.		1880-82.	
		Quantity.	Value.	Quantity.	Value.
<i>Italy.</i>			\$		\$
1	Furniture.....		28		41
2	Manufactures of wood, N.E.S.....		21		27
3	Total.....		49		68
<i>Austria.</i>					
4	Furniture.....				200
5	Manufactures of wood, N.E.S.....		591		251
6	Total.....		591		451
<i>British West Indies.</i>					
7	Furniture.....		2		1
8	Manufactures of wood, N.E.S.....		1		13
9	Lumber and timber.....		350		
10	" pitch pine..... M. ft.....			1	20
11	" African teak, &c..... "				
12	" Spanish cedar.....				1
13	Logs and round unmanufactured timber.....				4,039
14	Total.....		353		4,074
<i>British East Indies.</i>					
15	Furniture.....				195
16	Manufactures of wood, N.E.S.....				
17	Total.....				195
<i>Danish West Indies.</i>					
18	Logs and round unmanufactured timber.....				
<i>Dutch East Indies.</i>					
19	Manufactures of wood, N.E.S.....				
20	Logs and round unmanufactured timber.....				
21	Total.....				
<i>Spanish West Indies.</i>					
22	Manufactures of wood, N.E.S.....				4
23	Logs and round unmanufactured timber.....				28
24	Spanish cedar..... M. ft.....			1	88
25	Total.....				120
<i>Newfoundland.</i>					
26	Furniture.....		4		6
27	Manufactures of wood, N.E.S.....		21		28
28	Woodenware.....				
29	Lumber and timber, N.E.S.....		1,934		93
30	African teak, &c.....				
31	Logs and round unmanufactured timber.....				7
32	Total.....		1,959		134

Forest wealth of Canada.

Navigation Returns)—*Continued.*

articles of Wood and Manufactures, &c.—*Continued.*

IMPORTS FOR THE PERIODS OF						IMPORTS.						
1883-85.		1886-88.		1889-91.		1892.		1893.				
Quantity	Value.	Quantity	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.			
	\$		\$		\$		\$		\$			
	125		275		164		292		117	1		
	279		1		32				63	2		
	404		276		196		292		180	3		
	165		688		1,912		1,107		549	4		
	3,076		491		2,034		2,995		1,307	5		
	3,241		1,179		3,946		4,102		1,856	6		
	4		3		4				55	7		
	1		46		456		565		85	8		
			25		16				89	9		
7	175		53		19			1	1,500	10		
		1			178		761		50	11		
	49		4						558	12		
	229		131		673		1,326		2,248	13		
			2							3	14	
	41				92					3	15	
	41		2		92					3	16	
			565				371				17	
					300						18	
					435						19	
					735						20	
											21	
			13		13					20	22	
											20	23
			13		13					20	24	
											20	25
			6								4	26
	12		233		148		15		4		27	
	1				135		127		199		28	
	33		333								199	29
	159											30
												31
	205		572		283		142		203		203	32

TABLE 8 (c) —(From Trade and
AVERAGE of Total Imports by Canada of certain

ARTICLES.	AVERAGE OF TOTAL			
	1877-79.		1880-82.	
	Quantity.	Value.	Quantity.	Value.
<i>Egypt.</i>				
1 Furniture.....		\$		\$
2 Manufactures of wood, N.E.S.....				
3 Total.....				
<i>St. Pierre.</i>				
4 Furniture.....		7		3
5 Manufactures of wood, N.E.S.....		30		
6 Shingles..... M.				
7 Lumber and timber, N.E.S.....				3
8 Logs and round unmanufactured timber.....				
9 Total.....		37		6
<i>Norway and Sweden.</i>				
10 Barrels containing linseed oil..... No.				
11 Furniture.....				15
12 Manufactures of wood, N.E.S.....		2,491		105
13 Lumber and timber.....				
14 Total.....		2,491		120
<i>Portuguese Poss. in Africa.</i>				
15 Furniture.....				36
<i>Switzerland.</i>				
16 Furniture.....				22
17 Woodenware.....				8
18 Manufactures of wood, N.E.S.....		17		300
19 Total.....		17		330
<i>British Guiana.</i>				
20 Lumber and timber, N.E.S.....				54
21 Redwood..... M. ft.				
22 Logs and round unmanufactured timber.....				13
23 Total.....				67
<i>Madeira.</i>				
24 Furniture.....		3		4
25 Manufactures of wood, N.E.S.....				
26 Total.....		3		4
<i>Australia.</i>				
27 Boxwood.....				
29 Manufactures of wood, N.E.S.....				
29 Total.....				

Forest wealth of Canada.

Navigation Returns)—*Continued.*

articles of Wood and Manufactures, &c.—*Continued.*

IMPORTS FOR THE PERIODS OF						IMPORTS.				
1883-85.		1886-88.		1889-91.		1892.		1893.		
Quantity	Value.	Quantity	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$		\$	
.....	95	.....	27	.....		.....		.....		1
.....		.....	65	.....		.....		.....		2
.....	95	.....	92	.....		.....		.....		3
.....			
.....	40	.....	106	.....	8	.....		.....		4
.....		.....	2	.....		.....		.....		5
.....		7	11	.....		.....		.....		6
.....	50	.....	5	.....		.....		.....		7
.....		.....		.....		.....		.....		8
.....	90	.....	124	.....	8	.....		.....		9
.....			
.....	4	.....	58	.....	3	.....		1	1	10
.....	7	.....	95	.....		.....	12	.....	92	11
.....		.....		.....	2	.....		.....		12
.....		.....		.....		.....		.....		13
.....	11	.....	153	.....	5	.....	12	.....	102	14
.....			
.....		.....	10	.....	73	.....		.....		15
.....			
.....	6	.....		.....	5	.....		.....		16
.....		.....		.....		.....		.....		17
.....	70	.....	47	.....	160	.....		.....	1	18
.....			
.....	76	.....	47	.....	165	.....		.....	1	19
.....			
.....	176	.....	10	.....	20	.....		.....		20
.....		.....		1	18	.....		.....		21
.....		.....		.....	63	.....		.....	130	22
.....			
.....	176	.....	10	.....	101	.....		.....	130	23
.....			
.....	68	.....		.....		.....		.....		24
.....	14	.....		.....		.....		.....		25
.....			
.....	82	.....		.....		.....		.....		26
.....			
.....		.....	7	.....		.....		.....		27
.....		.....		.....	27	.....		.....		28
.....			
.....		.....	7	.....	27	.....		.....		29

TABLE 8 (c)—From Trade and
AVERAGE of Total Imports by Canada of certain

ARTICLES.		AVERAGE OF TOTAL			
		1877-79.		1880-82.	
		Quantity.	Value.	Quantity.	Value.
			\$		\$
<i>Spain.</i>					
1	Furniture.....				4
2	Woodenware.....				32
3	Manufactures of wood, N.E.S.....				
4	Total.....				36
<i>Holland.</i>					
5	Furniture.....		32		
6	Manufactures of wood, N.E.S.....				
7	Total.....		32		
<i>Turkey.</i>					
8	Furniture.....				
9	Manufactures of wood, N.E.S.....				
10	Total.....				
<i>Other Countries.</i>					
11	Furniture.....				27
12	Woodenware.....				1
13	Manufactures of wood, N.E.S.....				92
14	Boxwood.....				
15	African teak, &c.....				
16	Logs and round unmanufactured timber.....				50
17	Total.....				170

SUM

18	Barrels containing petroleum or its products.....	No.			
19	" linseed oil.....	"			
20	" salted meats.....	"			
21	Furniture.....		310,518		139,685
22	Coffins and caskets of any material.....				99
23	Hubs, spokes, felloes and parts of wheels, rough hewn or sawn only.....		31,413		10,858
24	Mouldings, plain and gilded.....				
25	Shingles.....	M.	1,807	3,403	14,206
26	Woodenware, pails, tubs, churns, &c.....				28,210
27	Wood manufactures, N.E.S.....		355,256		577,960
28	Lumber and timber.....		313,074		302,562
Lumber—					
29	Boxwood.....	M. ft.	168,300	41	2,057
30	Cherry, chestnut, &c.....	"	* 668		* 128
31	Mahogany.....	"	*	40	4,517
32	Oak.....	"		1,601	50,290
33	Pitch pine.....	"	*	3,511	70,787
34	Redwood.....	"			
35	Rosewood.....	"	*		330

* Included in boxwood, except cherry, chestnut, &c., from Great Britain.

TABLE 8 (c)—(From Trade and
AVERAGE of Total Imports by Canada of certain

ARTICLES.		AVERAGE OF TOTAL			
		1877-79.		1880-82.	
		Quantity.	Value.	Quantity.	Value.
<i>Summary—Continued.</i>			\$		\$
1	Lumber— Spanish cedar M. ft.			123	4,238
2	Sycamore “				
3	Walnut “		*	3,790	189,275
4	White ash “				
5	African teak, black-heart ebony, &c. “				47
6	Veneers of wood		7,134		
7	Wood pulp				
8	Logs and round unmanufactured timber		127,896		822,914
9	Felloes, hickory, rough sawn to shape				
10	Hickory billets, when imported for the manufacture of tool handles				
11	Hickory, sawn to shape for spokes of wheels				
12	Hickory spokes, rough turned				
13	Staves		19,511		
14	Firewood Cords.	3,326	9,036	122	307
15	Planks and boards				
16	Amaranth and cocoboral M. ft.				
17	Wood of the persimmon and dogwood trees				
18	Total		1,346,209		2,206,366

* Included in boxwood, except cherry, chestnut, &c., from Great Britain.

Forest wealth of Canada.

Navigation Returns)—*Concluded.*

articles of Wood and Manufactures, &c.—*Concluded.*

IMPORTS FOR THE PERIODS OF						IMPORTS.				
1883-85.		1886-88.		1889-91.		1892.		1893.		
Quantity	Value.	Quantity	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	\$		\$		\$		\$		\$	
249	8,653	319	9,238	497	10,768	977	20,085	466	11,710	1
				2	99	60	2,350	55	1,366	2
4,622	216,207	4,566	233,241	3,525	114,054	2,749	134,700	2,152	110,412	3
				43	1,078	138	5,168	315	8,757	4
26	2,426	106	2,741	95	4,052		4,652	64	3,533	5
			13,773		47,714		54,945		48,155	6
					665		361		2,663	7
	653,553		370,265		492,237		232,723		266,990	8
					12,356		7,377		14,220	9
			795		4,000		1,704		4,297	10
	5,052		21,020		35,255		12,873		14,427	11
					18,575		57,190		64,027	12
										13
2,482	13,810	1,232	4,264	6,243	22,976	3,557	14,016	5,355	20,680	14
			84		3					15
							20		273	16
			66		373		51		451	17
	2,731,694		2,137,006		2,593,240		2,136,016		2,084,225	18

TABLE 9.—Canada—Wood.

EXPORTS and Imports by Canada, by Countries—Produce and not Produce.—(As given in the Canadian Trade and Navigation Returns.)

COUNTRIES.	YEAR.	EXPORTS.		IMPORTS.
		Total Product.	Manufactures.	
		\$	\$	
<i>Great Britain</i>	1877-79	12,692,139	94,204	28,098
	1880-82	11,745,053	453,966	52,631
	1883-85	12,582,898	413,529	85,123
	1886-88	10,186,565	271,400	59,041
	1889-91	12,051,724	369,189	60,835
	1892	9,645,319	581,512	91,972
	1893	11,105,482	605,213	85,499
<i>United States</i>	1877-79	4,716,313	181,884	1,307,376
	1880-82	9,090,202	270,098	1,743,100
	1883-85	10,665,893	332,525	2,588,437
	1886-88	10,766,086	438,318	2,039,297
	1889-91	12,149,704	553,706	2,603,673
	1892	12,632,643	681,605	2,006,715
	1893	14,841,455	792,961	1,944,715
<i>Newfoundland</i>	1877-79	104,493	46,254	1,945
	1880-82	72,581	33,702	134
	1883-85	122,908	29,912	205
	1886-88	50,334	33,740	572
	1889-91	46,826	36,084	283
	1892	34,131	16,425	142
	1893	255,455	72,930	203
<i>St. Pierre</i>	1877-79	16,716	5,345	37
	1880-82	23,087	3,962	6
	1883-85	24,060	8,803	90
	1886-88	28,352	26,998	124
	1889-91	24,477	14,076	8
	1892	21,056	27,048	.....
	1893	16,811	15,278	.....
<i>British West Indies</i>	1877-79	339,955	15,963	353
	1880-82	302,889	14,860	4,074
	1883-85	251,277	13,824	229
	1886-88	168,713	7,923	131
	1889-91	218,092	20,319	673
	1892	150,819	7,254	1,326
	1893	198,330	22,375	2,248
<i>Danish West Indies</i>	1877-79	2,597	36	.....
	1880-82	2,959	1,189	.....
	1883-85	2,184	48	.....
	1886-88	1,999	802	.....
	1889-91	4,812	149	735
	1892	4,587	.....	.....
	1893	1,959	50	.....
<i>Spanish West Indies</i>	1877-79	198,672	7,413	.....
	1880-82	135,354	628	120
	1883-85	86,759	1,032	13
	1886-88	64,484	4,155	13
	1889-91	116,926	3,947	.....
	1892	188,520	308	20
	1893	185,766	7,274	.....

Forest wealth of Canada.

TABLE 9.—Canada—Wood—Continued.

EXPORTS and Imports by Canada, by Countries—Produce and not Produce.—(As given in the Canadian Trade and Navigation Returns)—Continued.

COUNTRIES.	YEAR.	EXPORTS.		IMPORTS.
		Total Product.	Manufactures.	
		\$	\$	\$
<i>French West Indies.</i>	1877-79	14,352	3,967	*
	1880-82	21,661	2,949	
	1883-85	11,444	3	
	1886-88	2,884		
	1889-91	3,153	3,467	
	1892	6,403		
	1893	5,056	200	
<i>St. Domingo and Hayti</i>	1877-79	9,829	2,403	
	1880-82	9,964	3,033	
	1883-85	3,985		
	1886-88	707		
	1889-91	649	3	
	1892			
	1893			
<i>Chili.</i>	1877-79			
	1880-82			
	1883-85	41,754	2,700	
	1886-88	56,270	9,498	
	1889-91	78,027	300	
	1892	135,905		
1893	118,226			
<i>Brazil</i>	1877-79			
	1880-82		4,461	
	1883-85	22,002	5,793	
	1886-88	6,291		
	1889-91	16,390		
	1892	35,830	15,392	
	1893	31,155	5,000	
<i>Argentine Republic.</i>	1877-79			
	1880-82			
	1883-85	379,088	16,902	
	1886-88	375,082	10,329	
	1889-91	468,132	22,304	
	1892	100,550	19,680	
	1893	357,919		
<i>Uruguay.</i>	1877-79			
	1880-82		94	
	1883-85	171,033	4,208	
	1886-88	85,636	1,432	
	1889-91	43,708		
	1892	9,777		
	1893	23,297		
<i>Peru.</i>	1877-79			
	1880-82			
	1883-85	51,675		
	1886-88	20,377		
	1889-91	45,129		
	1892	19,792		
1893	34,767			

* Possibly included in "Other Countries."

TABLE No. 9.—Canada—Wood—Continued.

EXPORTS and Imports by Canada, by Countries—Produce and not Produce.—(As given in the Canadian Trade and Navigation Returns)—Continued.

COUNTRIES.	YEAR.	EXPORTS.		IMPORTS.
		Total Product.	Manufactures.	
		\$	\$	
<i>British Guiana</i>	1877-79	27,555	2,912	.....
	1880-82	43,527	1,555	67
	1883-85	86,350	902	176
	1886-88	38,002	765	10
	1889-91	41,330	2,819	101
	1892	9,862	980	.....
	1893	16,956	778	130
<i>Germany</i>	1877-79	11,760	17	1,172
	1880-82	8,214	2,313	14,608
	1883-85	1,826	20,585	28,934
	1886-88	1,001	4,987	15,608
	1889-91	12,461	21,942	11,380
	1892	2,449	834	11,270
	1893	1,708	134	27,458
<i>Belgium</i>	1877-79	52,346	.....	43
	1880-82	24,529	.....	470
	1883-85	9,788	1,667	121
	1886-88	2,605	173	1,796
	1889-91	4,619	170	292
	1892	1,171	.....	601
	1893	12,241	.....	291
<i>Italy</i>	1877-79	.....	.....	49
	1880-82	2,530	.....	68
	1883-85	5,385	2,267	404
	1886-88	9,853	.....	276
	1889-91	6,469	2,733	196
	1892	20,331	2,200	292
	1893	.....	.....	180
<i>Holland</i>	1877-79	42,555	9,833	32
	1880-82	37,103	500	.....
	1883-85	12,945	1,579	13
	1886-88	7,051	.....	153
	1889-91	4,175	.....	10
	1892	34,530	.....	.....
	1893	22,030	5,840	.....
<i>France</i>	1877-79	290,934	435	3,228
	1880-82	553,624	166	9,154
	1883-85	342,604	25,852	22,271
	1886-88	199,615	97	6,294
	1889-91	127,875	4,329	4,732
	1892	186,970	715	11,176
	1893	110,248	.....	6,112
<i>Portugal</i>	1877-79	53,519	286	.....
	1880-82	63,711	133	.....
	1883-85	61,662	852	.....
	1886-88	39,543	8	.....
	1889-91	39,822	17	.....
	1892	46,138	.....	.....
	1893	20,971	.....	.....
<i>Spain</i>	1877-79	37,713	9,833	.....
	1880-82	64,445	500	36
	1883-85	135,596	1,579	.....
	1886-88	55,314	.....	108
	1889-91	40,413	.....	.....
	1892	27,001	.....	.....
	1893	41,499	5,840	.....

Forest wealth of Canada.

TABLE No. 9.—Canada—Wood—*Continued.*

EXPORTS and Imports by Canada, by Countries.—Produce and not Produce—(As given in the Canadian Trade and Navigation Returns)—*Continued.*

COUNTRIES.	YEAR.	EXPORTS.		IMPORTS.
		Total Product.	Manufactures.	
		\$	\$	
<i>Gibraltar</i>	1877-79	5,193		
	1880-82	9,123		
	1883-85	6,989		
	1886-88	6,799		
	1889-91	2,200		
	1892	3,802		
	1893	4,696		
<i>Madeira</i>	1877-79	10,014		3
	1880-82	10,738		4
	1883-85	17,366		82
	1886-88	14,333		
	1889-91	15,358		
	1892	16,000		
	1893	14,476		
<i>Canary Islands</i>	1877-79	5,126		
	1880-82	6,871		
	1883-85	790		
	1886-88			
	1889-91			
	1892			
	1893			
<i>Australia</i>	1877-79	154,488	19,375	
	1880-82	164,115	3,680	
	1883-85	255,009	24,115	
	1886-88	151,842	5,641	7
	1889-91	238,425	3,144	27
	1892	251,495	147	
	1893	148,626	60	
<i>China</i>	1877-79	59,462		471
	1880-82	34,234	3,000	518
	1883-85	40,028		1,494
	1886-88	47,496	2,077	2,422
	1889-91	39,705	7	1,683
	1892	8,522		1,683
	1893	9,948	50	1,843
<i>Africa</i>	1877-79	30,587		
	1880-82	48,513	730	
	1883-85	59,966	1,506	* 95
	1886-88	36,946		* 92
	1889-91	19,722	2,013	
	1892	23,812	4,373	
	1893	15,828	9,330	
<i>Labrador</i>	1877-79	191	2,977	
	1880-82	192	249	
	1883-85	102	268	
	1886-88	27		
	1889-91		64	
	1892			
	1893			
<i>South America</i> (Details of the countries forming South America are given separately after 1882.)	1877-79	264,527	6,477	
	1880-82	333,603	3,107	
	1883-85			
	1886-88			
	1889-91			
	1892			
* <i>Egypt</i> .	1893			

TABLE No. 9.—Canada—Wood—Continued.

EXPORTS and Imports by Canada, by Countries—Produce and not Produce.—(As given in the Canadian Trade and Navigation Returns)—Continued.

COUNTRIES.	YEAR.	EXPORTS.		IMPORTS.
		Total Product.	Manufactures.	
		\$	\$	\$
<i>Turkey</i>	1883-85			70
	1886-88			12
	1889-91			4
	1893			21
<i>Dutch West Indies</i>	1877-79			
	1880-82			
	1883-85			
	1886-88			
	1889-91			
	1892		308	
1893		7,274		
<i>British East Indies</i>	1877-79			
	1880-82			
	1883-85		1,667	195
	1886-88		4,056	41
	1889-91		87	2
	1892		68	92
1893				
<i>Norway and Sweden</i> ..	1877-79			
	1880-82		23,291	2,491
	1883-85		37,963	120
	1886-88		87,091	11
	1889-91		65,979	153
	1892		220,769	5
	1893		253,609	12
<i>Denmark</i>	1877-79			
	1880-82		4,920	
	1883-85		4,373	
	1886-88		1,000	
	1889-91		3,333	
	1892			86
	1893			
<i>United States of Colombia</i>	1877-79			
	1880-82			
	1883-85		1,175	
	1886-88		16,023	
	1889-91		2,194	
	1892		44	
1893		410		
<i>Central America States</i>	1877-79			
	1880-82		233	
	1883-85			
	1886-88		7	
	1889-91		17	
	1892			
1893				
<i>Austria</i>	1877-79			591
	1880-82			451
	1883-85			2,241
	1886-88			1,179
	1889-91			3,946
	1892			4,102
	1893			1,856

Forest wealth of Canada.

TABLE No. 9.—Canada—Wood—*Concluded.*

EXPORTS and Imports by Canada, by Countries—Produce and not Produce.—(As given in the Canadian Trade and Navigation Returns)—*Concluded.*

COUNTRIES.	YEAR.	EXPORTS.		IMPORTS.
		Total Product.	Manufactures.	
		\$	\$	\$
<i>British Honduras</i>	1877-79			
	1880-82			
	1883-85			
	1886-88			
	1889-91		733	
	1892 1893			
<i>Portuguese Possessions in Africa</i>	1877-79			
	1880-82			36
	1883-85			
	1886-88		24	10
	1889-91		542	73
	1892 1893			
<i>Japan</i>	1877-79			319
	1880-82			74
	1883-85			861
	1886-88		1,667	9,029
	1889-91		173	4,560
	1892 1893		170	5,114 3,534
<i>Switzerland</i>	1877-79			17
	1880-82			330
	1883-85			76
	1886-88			47
	1889-91			165
	1892 1893			1
<i>New Zealand</i>	1877-79		8,516	
	1880-82		5,500	
	1883-85		14,467	
	1886-88		20	
	1889-91		131	
	1892 1893		25 250	
<i>Russia</i>	1877-79		1,813	
	1880-82		2,027	
	1883-85			
	1886-88		3,333	
	1889-91		3,417	
	1892 1893		35,000 9,000	
<i>Greece</i>	1880-82		2,333	
<i>Sandwich Islands</i>	1886-88		2,000	
<i>Other Countries</i>	1877-79		1,422,418	
	1880-82		863,109	170
	1883-85		1,023,006	
	1886-88		894,642	64
	1889-91		1,293,327	35
	1892		1,701,447	978
	1893		1,741,792	7

TABLE 10.—Exports by Canada to the United Kingdom.

PRODUCTS of the Forest, the Factory and the Shipyard—Produce of Canada.—(From Canadian Trade and Navigation Returns.)

YEAR.	Total Exports to United Kingdom.	WOOD EXPORTS BY CANADA TO UNITED KINGDOM.		
		From the forest.	From the factory.	From the shipyard.
	\$	\$	\$	\$
1868.	10,150,469	4,034,471	5,326,668	789,330
1869.	12,170,836	4,462,827	6,704,929	1,003,080
1870.	11,219,181	4,412,296	6,204,405	602,480
1871.	12,197,571	5,467,811	6,200,078	529,682
1872.	13,129,142	6,214,292	6,582,588	332,262
1873.	14,515,316	6,046,922	7,711,044	757,350
1874.	15,741,523	5,364,422	9,580,426	796,675
1875.	17,102,568	6,595,733	9,717,385	789,450
1876.	15,532,196	4,984,999	9,063,912	1,483,285
1877.	17,895,570	7,048,837	9,734,887	1,111,846
1878.	14,397,898	4,671,947	8,725,306	1,000,645
1879.	7,857,538	1,815,726	5,642,576	399,236
1880.	9,243,438	2,363,576	6,748,882	310,980
1881.	14,110,499	5,926,757	8,977,842	205,900
1882.	11,878,075	3,704,028	7,858,861	315,186
1883.	13,510,734	4,779,953	8,494,879	245,902
1884.	14,141,202	5,118,497	8,878,085	144,620
1885.	9,924,164	3,443,276	6,402,588	78,300
1886.	11,190,149	3,408,628	7,681,913	99,608
1887.	9,640,456	2,208,620	7,396,702	35,134
1888.	9,146,272	2,469,758	6,571,121	105,393
1889.	10,500,669	3,144,588	7,298,801	57,220
1890.	14,455,264	4,342,963	10,112,301	.....
1891.	11,616,858	3,105,676	8,488,576	22,606
1892.	10,031,738	2,639,169	7,300,069	92,500
1893.	11,425,223	2,469,436	8,840,154	115,633

From the forest includes square timber, logs, railway ties, firewood, &c. From the factory includes all products upon which labour has placed by its exertions an increase in the value beyond the work of cutting and squaring. From the shipyard includes all ships new or old sold.

PRODUCE of Canada.—(From Canadian Trade and Navigation Returns.)

YEAR.	Total Exports to United States.	WOOD EXPORTS TO UNITED STATES.		
		From the forest.	From the factory.	From the shipyard.
	\$	\$	\$	\$
1868.	7,875,379	1,303,034	6,572,345	.....
1869.	7,543,774	1,147,104	6,396,670	.....
1870.	8,967,590	1,232,643	7,734,947	.....
1871.	9,208,493	1,405,739	7,802,754	.....
1872.	9,325,608	1,343,613	7,981,995	.....
1873.	12,688,527	2,400,693	10,287,834	.....
1874.	9,766,804	1,897,310	7,869,494	.....
1875.	6,485,996	1,294,098	5,191,898	.....
1876.	4,962,764	981,709	3,958,905	22,150
1877.	5,593,254	1,052,548	4,536,716	4,000
1878.	4,632,688	1,076,992	3,549,696	6,000
1879.	4,382,557	983,192	3,396,615	2,750
1880.	6,771,299	1,488,974	5,260,625	21,700
1881.	8,609,093	1,746,838	6,849,425	12,830
1882.	10,466,739	2,312,572	8,147,267	6,900
1883.	10,182,787	2,084,713	8,085,954	12,120
1884.	10,180,935	1,854,281	8,326,654	.....
1885.	9,728,032	1,428,409	8,299,523	100
1886.	8,964,962	1,502,792	7,459,820	2,350
1887.	9,740,757	1,332,092	8,408,265	400
1888.	10,742,904	2,155,539	8,580,365	7,000
1889.	11,469,035	2,020,117	9,433,418	15,500
1890.	10,734,212	1,956,883	8,776,629	700
1891.	13,396,060	2,304,035	10,086,768	5,257
1892.	12,050,966	2,627,312	9,415,654	8,000
1893.	14,558,085	3,094,593	11,463,492	.....

Forest wealth of Canada.

TABLE 11.—Exports to United Kingdom of White Pine, squared.

(From Canadian Trade and Navigation Returns.)

YEARS.	Tons.	Value.	Value per ton.
		\$	\$ cts.
1868.....	407,731	2,317,474	5 69
1869.....	413,696	2,581,287	6 24
1870.....	341,791	2,707,438	7 92
1871.....	332,234	3,265,417	9 82
1872.....	413,073	4,073,129	9 87
1873.....	355,227	3,837,466	10 80
1874.....	243,235	2,651,724	10 90
1875.....	338,976	3,460,850	10 21
1876.....	282,753	2,908,641	10 28
1877.....	408,698	4,211,752	10 30
1878.....	292,108	2,766,961	9 47
1879.....	126,259	1,077,478	8 54
1880.....	144,253	1,175,751	8 15
1881.....	330,079	3,506,641	10 62
1882.....	182,841	2,153,839	11 80
1883.....	210,825	2,837,159	13 45
1884.....	249,745	3,160,812	12 66
1885.....	168,443	1,984,523	11 80
1886.....	167,356	1,748,055	10 45
1887.....	104,050	1,325,246	12 73
1888.....	122,784	1,480,771	12 06
1889.....	149,065	2,006,457	13 50
1890.....	173,479	2,650,847	15 30
1891.....	138,736	1,952,083	14 07
1892.....	118,454	1,572,138	13 27
1893.....	97,446	1,367,071	14 03

TABLE 12.

EXPORTS AND IMPORTS OF LOGS.

The official returns show an enormous increase in the exports of Canadian logs to the United States in the twelve years from 1882 to 1893. In 1882 they amounted to 46,450,000 feet B.M., \$274,083 value; in 1893 to 198,021,000 feet B.M., \$1,507,000 value.

The bulk of this increase was in pine logs from 1,313,000 feet B.M., \$16,001 value in 1882, to 127,062,000 feet B.M., \$1,056,355 value in 1893. The ratio of increase is rapidly accelerating; a division into three periods of four years shows the following results:—

Four-year periods.	Feet B.M.		Average ft.	
1882-5.....	4,335,000	\$ 37,943	1,083,750	\$ 9,483
1886-9.....	20,526,000	171,856	5,131,500	42,964
1890-3.....	269,868,000	2,282,802	67,467,000	570,700

Thus the yearly average of about one million feet in the first four years grew to five million in the next period and to nearly sixty-seven and a half million in the period just ended.

By far the greater portion, practically the whole, of these pine logs were from the province of Ontario.

In spruce and hemlock, mostly from the province of Quebec, there was also a considerable increase, making with that in pine logs, almost the whole of the total increase of logs exported to the United States. (*see Table 12a.*)

The United States returns of "unmanufactured wood" imported from Canada are given for comparison. They include much besides sawlogs. (*See Table 12b.*)

The imports of logs from the United States were far smaller than the exports to that country. As is shown in Table 12c, the imports reported by our Customs Department are much less than the exports reported by the United States, which gave only their own produce, while the Canadian figures include logs imported through the United States from elsewhere.

These imported logs are not pine except in the case of those floated down from the tributaries in the United States of the Rainy River, to the mills at Rat Portage, &c. This is the result of natural position. In the evidence before the Committee on Immigration, &c., in 1878-79, Mr Hugh Sutherland said of this timber: "It must go out by our route as the water goes" (*Jour. vol. XII., page 169*), and Mr. Dawson, M.P., said: "It must go that way as there is no other way of getting it out." (*Jour. vol. XIII., page 86*).

The abnormal amount of United States' exports of logs to us in 1883, may be partly due to the facts mentioned in the report of Mr. E. F. Stephenson, Crown Timber Agent, Winnipeg, who says: "There has existed an unusual depression in the lumber trade of Minnesota from which cause a very large quantity of building material has been forced into Canada to find a market here at whatever prices could be obtained for it." (*Dept. of Interior Report, page 25, I.*)

In this and other instances there is an apparent discrepancy between the Canadian and United States returns; though the fiscal year in both countries ends with June, transportation may easily begin in one year in one country and end the next year in the other country.

Some logs are brought from the United States into Canada which are not reported as logs in the returns of exports and imports of either country; they are the logs (chiefly spruce) cut in the State of Maine, on the tributaries of the St. Croix and St. John rivers, floated freely by treaty into New Brunswick and there manufactured. The products of

Forest wealth of Canada.

these logs, however, appear in our returns in the forest exports from New Brunswick "not the produce of Canada," and in the United States returns there is a special report of the imports from New Brunswick of the produce from Maine logs. The amounts are rather larger than in the Canadian export returns, but the variation may easily be due to difference of valuation by the Customs authorities. (See Table 12*d*.)

Appended are the following tables, covering twelve years:—

Table (a.) Exports of logs to United States, quantities and value.

(b.) United States imports from Canada—"wood unmanufactured."

(c.) Imports of logs from United States, and export of logs from United States to Canada.

(d.) Exports from New Brunswick—products of Maine logs and United States returns of such imports.

TABLE

EXPORT of Logs to United States.—(From

YEARS.	a PINE LOGS.			b SPRUCE LOGS.			c HEMLOCK LOGS.	
	Feet, B.M.	Value.	Duty collected.	Feet, B.M.	Value.	Duty collected.	Feet, B.M.	Value.
		\$	\$ cts.		\$	\$ cts.		\$
1882	1,313,000	16,001	.....	5,980,000	22,681	.....	3,757,000	13,106
1883	1,666,000	11,630	.....	6,255,000	30,858	.....	4,323,000	20,622
1884	974,000	8,012	.....	6,820,000	31,793	.....	4,818,000	19,168
1885	382,000	2,300	.....	11,165,000	49,449	.....	3,629,000	14,752
1886	2,869,000	24,452	.....	17,541,000	81,874	.....	6,881,000	28,076
1887	6,350,000	49,242	13,107 02	17,526,000	88,773	17,535 58	4,206,000	17,447
1888	468,000	3,875	935 80	20,714,500	99,450	20,715 11	4,512,000	18,383
1889	10,839,000	94,287	21,811 27	20,360,000	137,298	20,393 90	6,420,000	24,261
1890	32,144,000	261,626	66,863 23	26,073,000	156,898	26,082 47	2,952,000	12,288
1891	36,699,000	313,281	60,756 91	28,494,000	158,334	3,851 50	2,210,000	9,802
1892	73,963,000	651,540	.....	23,434,000	141,168	108 00	5,057,000	21,426
1893	127,062,000	1,056,355	.....	21,103,000	123,254	.....	5,880,000	26,036
Totals ..	294,729,000	2,492,601	163,474 23	205,465,500	1,121,830	88,686 56	54,645,000	225,367
Douglas fir..	1,197,000	7,182	.....	.....	.....	.....	.....	.....

a. Pine logs, almost wholly from Ontario ; very few from Quebec ; none from other provinces.

b. Spruce logs, chiefly from Quebec ; a few from New Brunswick, Nova Scotia and British Columbia ; very few from Ontario.

c. Hemlock logs, almost wholly from Quebec ; very few from New Brunswick and Nova Scotia.

d. In addition to these 1,197,000 feet B.M., \$7,182, value of pine logs, are attributed to British Columbia ; probably Douglas fir.

e. Collected, December, 1890.

f. Tamarack logs, chiefly from Quebec ; a few from Nova Scotia and Ontario.

g. Oak logs, almost wholly from Ontario ; very few from Quebec ; none from other provinces.

h. Elm logs, do do do do With

"Other Logs" till 1888.

i. Other logs, the largest portion from Ontario ; considerable from Quebec ; less from Nova Scotia and New Brunswick.

Forest wealth of Canada.

12 (a).

Canadian Trade and Navigation Returns.)

f TAMARACK LOGS.		g OAK LOGS.		h ELM LOGS.		i OTHER LOGS.		TOTAL LOGS AND VALUE	
Feet, B.M.	Value	Feet, B.M.	Value.	Feet, B.M.	Value.	Feet, B.M.	Value.	Feet, B.M.	Value.
	\$		\$		\$		\$		\$
387,000	3,651	4,815,000	66,862			30,198,000	151,782	46,450,000	274,083
15,000	145	1,820,000	29,819			28,536,000	159,528	43,812,000	259,784
		2,225,000	30,399			30,880,000	139,207	45,717,000	228,579
		1,137,000	15,548			31,479,000	143,483	47,792,000	225,532
		1,163,000	13,660			37,581,000	161,385	66,035,000	309,447
		388,000	7,755			38,137,000	177,866	66,607,000	341,083
		1,862,000	34,022	21,916,000	106,519	22,577,000	121,277	72,049,500	383,526
6,000	63	2,890,000	52,205	27,294,000	136,754	25,698,000	119,752	93,507,000	564,020
		2,124,000	39,445	28,413,000	144,935	11,710,000	66,073	103,416,000	681,275
		1,096,000	21,400	27,470,000	155,503	9,157,000	64,525	105,126,000	722,845
		1,153,000	21,297	34,116,000	208,709	12,062,000	68,553	149,785,000	1,112,693
		1,347,000	21,030	33,615,000	219,065	9,014,000	62,040	198,021,000	1,507,780
408,000	3,859	22,020,000	353,442	172,824,000	971,484	287,029,000	1,435,471	1,038,317,500	6,611,247

TABLE 12 (b).—(From United States Returns.)

UNITED STATES Imports from Canada of Unmanufactured Wood.

Years.	Wood, Unmanufactured —Free.	Wood, Unmanufactured —Dutiable.	Total.
	\$	\$	\$
1882.....	1,980,029		1,980,029
1883.....	1,903,594		1,903,594
1884.....	1,573,217	80,845	1,654,062
1885.....	1,062,983	57,087	1,120,070
1886.....	1,362,237	54,304	1,416,541
1887.....	1,600,456	17,404	1,617,860
1888.....	2,029,597	10,350	2,039,947
1889.....	2,145,214	13,129	2,158,343
1890.....	1,948,334	9,416	1,957,750
1891.....	2,347,659	10,022	2,357,681
1892.....	2,059,043	50,724	2,109,767
1893.....	2,992,797	60,912	3,053,709
Totals.....	23,005,160	364,193	23,369,353

TABLE 12 (c).

IMPORTS of Logs from United States.

Years.	*Imports from United States— Logs and round unmanufactured Timber, N.E.S.	†United States Exports of Domestic Mer- chandise to Canada—Logs and other Timber (round).
	Value.	
	\$	\$
1882.....	691,547	173,749
1883.....	658,406	1,035,703
1884.....	692,958	213,806
1885.....	604,403	442,957
1886.....	493,196	101,498
1887.....	335,179	165,449
1888.....	279,872	161,829
1889.....	658,797	348,839
1890.....	256,100	325,320
1891.....	859,578	557,403
1892.....	231,591	356,509
1893.....	274,811	342,079
Totals.....	5,736,438	4,225,141

* From Canadian Trade and Navigation Returns; they include imports from other countries *via* United States.

† From United States Commerce and Navigation Returns; limited to produce of United States forests.

Forest wealth of Canada.

TABLE 12 (a).

EXPORTS from New Brunswick to United States, &c., not Produce of Canada :—Spruce deals, boards, scantling, laths, palings, staves, shingles, shooks, &c.

Years.	Exports from New Brunswick (not Canadian).			United States Imports from New Brunswick of produce from Maine Logs, &c.
	To United States.	To other Countries.	Totals.	
	\$	\$	\$	\$
1882.....	709,596	6,549	716,145	961,663
1883.....	768,598	14,061	782,659	927,101
1884.....	992,902	4,966	997,868	1,156,100
1885.....	762,449	4,800	767,249	1,177,892
1886.....	1,239,532	13,115	1,252,647	1,329,105
1887.....	1,270,979	2,990	1,273,969	1,334,031
1888.....	1,209,538	.....	1,209,538	1,464,865
1889.....	1,164,367	1,203	1,165,570	1,402,525
1890.....	916,446	.....	916,446	333,703
1891.....	1,314,327	4,800	1,319,127	1,747,900
1892.....	1,152,071	.....	1,152,071	1,450,892
1893.....	963,043	5,505	968,548	1,702,563
Totals.....	12,463,848	57,989	12,521,837	14,988,340

TABLE 13.—(From Canadian Trade and Navigation Returns.)

QUANTITIES and Value of Exports of Logs on which export Duties were levied, 1868-91.

Export Dutiable.)

Year ended 30th June.	Shingle Bolts.		Stave Bolts.		Oak Logs.		Spruce Logs.		Pine Logs.		Total Value.
	Cords.	Value.	Cords.	Value.	M. Ft.	Value.	M. Ft.	Value.	M. Ft.	Value.	
		\$		\$		\$		\$		\$	
1868											*78,524
1869	8,546	27,372	883	3,303	331	5,390					53,092
1870	11,038	39,889	1,615	5,248	876	9,165	With pine logs	+4,284	+17,037		157,252
1871	15,667	54,472	2,098	5,954	1,173	12,173		+22,258	+102,950		144,891
1872	8,374	31,408	2,507	7,440	725	8,028	2,751	11,666	13,204	60,626	144,891
1873	4,923	18,372	734	2,628	1,328	22,767	6,998	30,323	4,839	33,605	107,693
1874	2,987	11,634	1,038	3,908	991	9,625	4,706	18,855	3,852	21,792	65,814
1875	1,112	3,871	534	2,478	66	626	4,041	17,523	1,423	6,165	30,663
1876	1,236	3,499					2,937	12,047	425	1,857	17,413
1877	719	1,727					2,791	11,844	455	1,891	15,462
1878	304	747					3,748	12,756	106	673	14,176
1879	121	385					4,041	14,382	108	1,071	15,838
1880	717	2,202					6,036	19,272	2,075	13,771	35,245
1881	1,168	3,386			do	do	4,332	15,584	2,640	20,276	39,246
1882	1,516	5,653		do	do	do	5,980	22,681	1,313	16,001	44,335
1883	637	2,685		do	do	do	6,255	30,858	2,863	18,812	52,355
1884	721	2,857		do	do	do	6,820	31,793	974	8,012	42,662
1885	756	2,906		do	do	do	11,168	49,474	380	2,300	54,680
1886	271	936		do	do	do	17,566	82,016	2,869	24,452	107,404
1887	503	3,410		do	do	do	17,526	88,773	6,350	49,242	141,425
1888	81	738		do	do	do	20,714	99,450	468	3,875	104,063
1889				do	do	do	20,393	138,763	10,839	94,287	233,050
1890	480	4,975		do	do	do	26,082	157,112	32,144	261,626	423,713
1891	130	295		do	do	do	28,494	153,334	36,699	313,281	471,910
1892				do	do	do	23,434	141,168	73,963	651,540	.....

* No. of pieces, 17,985. † Spruce and pine together. ‡ \$108 duty collected in December, 1890, charged in 1892.

Forest wealth of Canada.

TABLE 14.

AMOUNTS paid as Export Duties on Logs, &c.—(From Canadian Trade and Navigation Returns.)

Year ended 30th June.	Shingle Bolts.	Stave Bolts.	Oak Logs.	Spruce Logs.	Pine Logs.	Total Duty.	Remarks.
	\$	\$	\$	\$	\$	\$	
1868....	\$					17,985	Duty first imposed in 1868, as follows:
1869....	8,581	\$ 868	\$ 663	\$	\$ 4,290	14,402	Shingle bolts per cord of 128 cub. ft., \$1
1870....	11,084	1,659	1,754	With pine logs	23,414	37,912	Stave do do \$1
1871....	15,667	2,098	2,345	2,751	13,204	36,066	Oak logs per M., B.M., \$2.
1872....	8,374	2,508	1,451	6,812	5,663	24,809	Spruce do 1.
1873....	4,924	734	2,656	6,998	4,840	20,152	Pine do 1.
1874....	2,986	1,037	1,982	4,707	3,852	14,565	
1875....	1,112	534	131	4,042	1,423	7,242	Export duty on staves and oak logs ;
1876....	1,236			2,838	426	4,500	repealed, chap. 35, Acts 1875 ; as-
1877....	718			2,929	455	4,103	sented to 8th April, 1875.
1878....	305			3,750	106	4,160	
1879....	122			4,043	107	4,272	
1880....	718			6,037	2,076	8,831	
1881....	1,166			4,332	2,640	8,140	
1882....	1,516			5,981	1,313	8,810	
1883....	637			6,255	2,863	9,756	
1884....	722			6,820	973	8,515	
1885....	756			11,168	381	12,305	Shingle bolts, spruce and pine logs, \$1.
*1886....	272			17,585	2,869	20,726	
1887....	755			17,535	13,107	31,397	Shingle bolts, \$1.50, pine logs, \$2.
1888....	121			20,716	936	21,772	do do do
†1889....				20,394	21,812	42,206	Pine logs, \$3. See note.
†1890....	720			26,082	66,863	93,674	do 2.
1891....	195			3,851	60,757	64,803	do 2. do
1892....				108		108	
1893....							

* Chap. 37, Acts of 1886, and chap. 33, sec. 6, Revised Statutes of Canada, 1886 (both assented to 2nd June, 1886), the duty on exported pine logs was increased to \$2, and on shingle bolts to \$1.50, power being given to the Governor in Council to remove the duty altogether or to increase it on pine logs to \$3 per M. feet in case public exigencies required a change.

† During the fiscal year ended 30th June, 1889, the duty on exported pine logs was raised to \$3 from the 13th November, 1888.

‡ During the fiscal year ended the 30th June, 1890, the duty was \$2, and during the fiscal year ended 30th June, 1891, it was \$2 till 13th October, 1890, when the export duty was altogether abolished and has not since (December, 1894) been reimposed.

§ Not separated.

TABLE

SHIPMENTS of Forest Products to United

No.	ARTICLES.	Measures.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.
1	Bark for tanning.....	Cords									3 95	3 78
2	Basewood, butternut, hickory..	M. ft.	10 61	5 89	7 97	10 52	9 20	7 79	6 24	12 95	10 01	10 69
3	Cedar fit for shingle bolts.....	Cords										
4	Firewood.....		2 19	2 16	2 21	2 24	2 49	2 74	2 75	2 41	1 98	2 46
5	Hop and other poles.....	Pieces										
6	Knees and futtocks.....		0 76	0 69	0 83	0 89	1 13	1 00	0 89	1 07	1 09	0 72
7	<i>a</i> Lathwood.....	Cords	5 67	8 37	0 68			1 37	6 23	9 06		5 04
8	<i>b</i> Logs—											
9	Elm.....	M. ft.						4 33			1 41	4 62
10	Hemlock.....	"										
11	Oak.....	"		16 25	14 62	10 38	11 07	17 13	9 71	9 48	12 40	9 54
12	Pine.....	"		3 97	4 73	4 59	5 08	6 94	5 66	4 33	4 37	4 16
13	Spruce.....	"			3 36	4 24	4 05	0 55		4 34	4 10	3 72
14	Tamarack.....	"										
14	All other.....	"									3 06	2 92
	Lumber—											
15	<i>e</i> Battens.....	"	0 21	0 01		0 12		0 06	0 01	0 21		1 24
16	<i>c</i> Deals, pine.....	St. hd	18 26	26 51	16 99	20 29	16 86	28 04	17 75	19 99	24 59	38 33
17	" spruce and other.....	"										
18	Deal ends.....	"		15 88	22 73			16 67	6 09	1 63	14 65	2 76
19	<i>d</i> Laths, palings and pickets.....	M.			1 07	1 01	1 10	1 13	1 13	0 95	1 06	0 89
20	<i>e</i> Planks and boards.....	M. ft.	9 76	9 63	9 42	11 13	9 12	11 12	9 17	9 93	10 69	10 04
21	<i>e</i> Joists.....	"										
22	<i>e</i> Scantling.....	"										
		& pcs.	0 08	0 10	0 06	0 04	0 11	0 04	0 07			7 83
23	Staves, standard.....	M.	75 39	76 87	23 08	43 65	87 90	87 05	86 04	13 94	68 93	45 85
24	" other and headings.....	"	15 41	13 64	16 98	13 73	14 81	20 12	19 13	11 33	15 22	4 94
25	Masts and spars.....	Pieces	2 52	0 77	1 24	1 42	0 76	1 51	1 12	1 70	0 61	1 02
26	Piles and pile timber.....	"										
27	Posts—cedar, tamarack, &c.....	"										
28	Shingles.....	M.	2 13	1 99	1 99	2 00	2 16	2 46	2 32	2 01	2 24	2 02
29	Shingle bolts.....	Cords		3 20	3 61	3 41	3 75	3 73	3 89	3 48	2 83	2 40
30	Sleepers and railway ties.....	Pieces	0 16	0 17	0 18	0 19	0 22	0 24	0 25	0 22	0 20	0 18
31	Stave bolts.....	Cords			3 23	2 83	2 97	3 47	3 67	4 64	2 99	2 00
32	Shoals, box.....	No.										0 41
33	" other.....	"										
	Timber, square—											
34	Ash.....	Tons.	5 21	4 89	0 58	2 52	3 14	4 27	4 06	5 06	7 69	
35	Birch.....	"	3 06	3 20	2 50	6 42	11 44	7 64	4 00	7 10	8 88	10 00
36	Elm.....	"	9 60	3 42	1 80	3 93	4 23	4 45	3 00	11 59		
37	Maple.....	"	3 17	2 29	0 12	1 52	1 70	6 13	1 29	1 81		
38	Oak.....	"	5 74	5 48	3 96	6 68	6 26	7 29	5 26	8 98	5 33	6 38
39	Pine, red.....	"	6 52	3 98	2 79	4 64	6 00	6 70	14 00	6 48		7 94
40	" white.....	"	2 78	3 89	2 77	3 19	3 08	5 24	14 41	5 99	4 71	5 56
41	Other.....	"									4 52	5 2
42	Hemlock.....	"						3 28				2
43	Tamarack.....	"	2 49	6 61		1 80	1 88	3 84	7 29	4 08		
44	Walnut.....	M. ft.	24 50	25 00	6 82	37 00	15 00	26 64	58 82	33 68		

a. Laths are included with "lathwood" in 1868 and 1869.

b. Elm logs are apparently included in "all other logs" till 1888. In 1868 no logs are specified, but

c. To 1884 all deals are classed together.

d. Till 1874 paling and pickets were not included with laths.

e. Till 1875 no "joists" were recorded; from 1876 to 1888 "joists" were included with "planks and joists" and "scantling" were returned separately. "Scantling" was recorded by "pieces" till 1875,

Forest wealth of Canada.

15.

States from Canada.—Prices (by Trade Returns).

1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	No.
3 39	3 46	3 91	4 74	4 71	4 94	5 26	4 87	4 53	4 47	4 37	4 32	4 45	4 64	4 60	4 91	1
7 19	10 92	8 74	8 13	6 28	13 65	13 08	12 37	7 50	12 93	11 47	15 22	13 91	13 80	14 79	16 57	2
1 91	1 93	1 92	2 14	2 09	2 36	2 23	2 18	2 02	2 05	2 16	2 16	2 11	2 13	2 07	1 95	3
0 24	0 82	1 72	0 89	1 04	0 94	0 80	1 01	0 94	0 78	0 56	0 91	0 81	0 96	0 88	0 64	4
.....	.....	.....	1 00	.....	.....	4 00	1 06	.....	3 00	.....	.....	2 05	.....	.....	2 51	5
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4 86	5 01	5 10	5 66	6 11	6 51	6
4 97	2 45	2 85	2 67	3 49	4 77	3 98	4 07	4 08	4 15	4 07	3 78	4 17	4 44	4 24	4 43	7
8 63	9 92	11 62	13 20	13 89	16 38	13 66	13 67	11 75	19 99	18 27	18 06	18 57	19 53	18 47	15 61	8
6 35	9 92	6 64	7 68	12 19	6 57	8 23	6 05	8 52	7 75	8 28	8 70	8 14	8 54	8 81	8 32	9
3 40	3 56	3 19	3 60	3 79	4 93	4 66	4 43	4 67	5 65	4 80	6 74	6 02	5 56	6 02	5 84	10
6 13	4 50	7 00	8 00	9 43	9 67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11
3 73	3 52	2 97	4 43	5 03	5 62	4 51	4 56	4 29	4 66	5 37	4 66	5 64	7 05	5 68	6 88	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15
27 01	1 83	25 40	26 47	42 42	2 60	61 98	47 89	72 00	41 32	34 67	52 07	22 71	.....	.....	.....	16
.....	20 56	.....	.....	.....	.....	.....	24 36	25 53	24 90	25 31	25 65	26 79	26 16	23 85	27 30	17
35 21	8 50	27 33	18 00	.....	.....	19 13	15 83	15 96	17 00	21 75	.....	20 11	.....	.....	.....	18
0 96	0 94	0 90	0 87	1 14	1 27	1 39	1 61	1 51	1 30	1 42	1 36	1 26	1 34	1 35	1 21	19
9 30	8 89	8 28	10 81	11 77	12 76	12 66	12 37	11 37	12 25	12 33	11 64	11 39	11 12	11 51	11 49	20
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7 87	8 16	8 05	7 68	7 83	21
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22
6 61	6 27	6 25	6 57	6 49	7 13	7 12	7 23	7 63	7 77	7 30	.....	.....	.....	.....	8 54	23
36 44	122 37	43 58	38 78	20 52	6 61	.....	.....	20 80	.....	.....	.....	10 00	85 82	.....	14 10	24
4 79	6 54	4 11	6 80	4 88	5 14	4 74	4 70	4 02	4 22	5 05	4 11	4 76	4 57	4 90	.....	25
0 84	0 51	0 48	0 43	0 89	0 97	0 95	0 53	0 57	0 53	0 49	0 56	0 61	0 60	0 54	1 63	26
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	28
2 07	1 66	1 81	2 06	2 46	3 05	2 22	2 54	2 10	2 17	2 09	2 11	2 19	2 12	2 08	2 05	29
2 46	3 15	.....	2 90	3 73	4 22	3 96	3 84	3 45	6 77	9 11	.....	10 36	2 27	.....	7 36	30
0 18	0 19	0 16	0 08	0 22	0 23	0 25	0 20	0 20	0 19	0 20	0 20	0 18	0 19	0 18	0 15	31
2 12	2 00	2 38	2 45	1 04	3 17	2 79	2 22	2 32	2 42	2 47	2 60	2 53	2 68	2 76	2 75	32
.....	.....	.....	0 34	.....	0 45	1 88	0 38	0 12	0 13	0 10	0 07	0 08	0 11	0 11	0 17	33
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	34
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	35
2 58	3 00	.....	2 31	9 50	7 98	.....	.....	.....	11 71	.....	.....	.....	10 75	.....	.....	36
8 15	7 00	.....	2 67	9 77	7 27	3 73	10 64	7 81	6 09	.....	5 14	8 00	1 50	.....	.....	37
.....	.....	.....	.....	.....	.....	.....	.....	.....	9 67	5 00	.....	13 00	.....	2 97	.....	38
16 03	10 25	7 16	6 01	13 35	8 58	13 68	10 95	5 60	18 64	13 25	7 33	13 00	10 46	18 75	.....	39
.....	.....	.....	1 71	5 02	9 18	12 22	.....	.....	11 29	8 79	9 28	.....	12 45	.....	.....	40
4 50	6 01	10 10	3 57	2 24	4 67	4 87	5 99	8 24	.....	11 02	14 65	7 50	11 69	9 52	9 00	41
6 45	4 27	8 41	1 72	3 44	5 73	6 69	5 53	6 01	11 81	3 23	7 27	7 28	6 86	4 42	7 27	42
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	44

there is a general item, "saw-logs," averaging \$4.37.

boards"; from 1889 to 1892 "joists" were classed with "scantling"; in 1893 "planks and boards," and since then by M. ft., and so also with "battens."

TABLE 16.—Logs Rafted to Michigan.

SAGINAW CITY BOARD OF TRADE REPORT, 1892.

Rafted by Lake.

The business of rafting logs on the lakes has been successfully conducted for many years on Lake Huron, immense quantities having been handled. The invention of the bag-boom has made log towing on the lakes practically as safe as towing on the river, and by this means rafts of 3,000,000 to 5,000,000 feet each are brought to the Saginaw river. The picture on page 30 represents one of Sibley & Bearer's rafts on Lake Huron, containing 5,000,000 feet of logs. The repeal of the export duty on logs, exacted by the Canadian Government, greatly stimulated the rafting of logs across Lake Huron to Michigan mills the last two years. In 1891 no less than 80,000,000 feet were brought to the Saginaw river, and in 1892 a much larger quantity came over, as figures given below will show. Large quantities of logs are also rafted from Upper Michigan and Lake Superior points to Saginaw and Lake Huron shore mills. The following figures show the quantities rafted in 1892 :—

From Georgian Bay.

	Feet.
For Emery Lumber Co.	35,000,000
“ Saginaw Lumber and Salt Co.	27,000,000
“ Spanish River Lumber Co.	22,000,000
“ Sage & Emery.	12,000,000
“ J. W. Howry & Sons.	22,000,000
“ Sibley & Bearer.	22,000,000
“ Wm. Peter.	10,500,000
“ Merrill & Ring.	6,000,000
“ Moore Lumber Co.	18,000,000
“ Eddy Bros. & Co.	4,000,000
Miscellaneous.	6,000,000
Total, 1892.	184,500,000
“ 1891.	80,000,000

From Upper Lake Points.

For S. G. M. Gates.	20,000,000
“ Saxe Bros.	2,500,000
“ Fisher & Hurst.	15,000,000
“ C. K. Eddy & Son.	4,000,000
“ other parties.	22,000,000
Total.	63,500,000

Of the Canada logs, about 40,000,000 were rafted to Tawas Bay mills, and the rest came to the Saginaw river. The log rafting business is only in its infancy, and Saginaw river mills will receive immense supplies of logs from this source for many years to come.

Forest wealth of Canada.

TABLE 17.—(From Department of Customs.)

STATEMENT showing number of logs, and quantity in feet, of Pine exported from Georgian Bay district during the fiscal years 1892 and 1893.

Date.	Shippers.	No. of Logs.	Feet.
1891.			
July 16	Geo. Avis		33,000
do 9	Howey & Sons		1,000,000
do 13	do		1,000,000
do 24	do		1,000,000
do 24	do		1,000,000
do 24	do		500,000
Aug. 6	do		1,000,000
do 7	do		1,000,000
do 14	do		500,000
do 19	do		1,000,000
July 13	J. & P. Charlton		1,000,000
Aug. 3	do		1,000,000
July 11	Nugent & Co.		3,000,000
do 28	R. Reid		700,000
Aug. 24	Adams & Wigg		80,000
do 24	W. D. Fremlin	6,500	300,000
do 20	Michigan Pipe Co.	5,322	673,128
1892.			
June 8	Saginaw Lumber Co.		3,000,000
do 2	Island Cedar Co.	3,000	300,000
May 9	Geo. Avis		282,801
do 21	Emery Lumber Co.	30,000	a 2,250,000
do 23	do	25,000	a 1,875,000
June 3	do	28,000	a 2,100,000
do 6	do	25,000	a 1,875,000
do 19	do	25,000	a 1,875,000
do 23	do	25,000	a 1,875,000
do 27	do	25,000	a 1,875,000
do 28	Moore Lumber Co.	20,000	a 1,520,000
do 23	Saginaw Lumber Co.	28,000	a 2,100,000
May 21	Howey & Sons		1,000,000
June 13	do		1,000,000
do 22	do		1,000,000
do 7	E. D. Wall		20,000
do 25	Saginaw L. & S. Co.	61,201	3,500,000
do 2	Sibley & Bearinger	48,000	2,500,000
do 1	Turner & Fisher	23,950	2,335,000
do 13	do	26,607	2,883,200
do 25	do	26,798	2,866,950
1891.			
June 18	Jos. Turner	20,025	2,513,289
do 29	do	20,693	2,468,440
Total for 1891-92			57,840,973
1892.			
July 30	H. A. Emery		3,000,000
Aug. 2	do		3,000,000
do 22	do		3,000,000
do 23	Skead & Allan		5,000,000
July 17	W. D. Hitchcock		450,000
do 2	Geo. Avis		245,133
Aug. 2	do		50,000
Oct. 25	Pentley & Reid		1,700,000
Aug. 18	Emery Lumber Co.	25,000	a 1,875,000
do 19	do	25,000	a 1,875,000
July 14	Moore Lumber Co.	20,000	a 1,520,000
do 28	do	28,000	a 2,100,000
do 27	do	28,000	a 2,100,000
Aug. 13	do	30,000	a 2,250,000
July 16	H. R. Hefield	6,285	471,375
do 4	Howey & Sons		1,000,000
do 9	do		1,000,000

a These figures represent the estimated number of feet, where only number of logs was given, each log being taken to contain 75 feet.

TABLE 17.—(From Department of Customs.)—*Concluded,*

STATEMENT showing number of logs, and quantity in feet, of Pine exported from Georgian Bay district during the fiscal years 1892 and 1893.

Date.	Shippers.	No. of Logs.	Feet.
1892.			
July 11.	Howey & Sons.		1,000,000
do 28.	do		1,000,000
Aug. 1.	do		1,000,000
do 15.	do		1,000,000
do 1.	J. T. Charlton.		1,000,000
Sept. 16.	J. G. Saxe.		2,500,000
do 3.	Howey & Sons.		1,000,000
July 20.	Hollester, Jewell & Co.		1,000,000
Aug. 1.	do	15,000	2,000,000
do 15.	do	25,876	1,975,000
do 17.	do		975,000
do 19.	John Dunn		127,000
do 2.	W. H. Jostin		800,000
do 17.	E. D. Johnston		80,000
July 30.	Howey & Sons.		4,000,000
do 8.	Saginaw L. & S. Co.	40,000	2,500,000
Aug. 3.	do	30,000	1,800,000
do 18.	do	40,000	2,500,000
Sept. 8.	do	60,000	3,700,000
July 28.	Sibley & Bearinger.	90,000	4,250,000
Sept. 19.	do	45,000	2,700,000
Oct. 22.	do	32,000	3,000,000
July 8.	Turner & Fisher.	26,129	2,859,330
do 21.	do	26,165	2,811,040
Aug. 6.	do	27,085	2,909,570
Sept. 7.	do	24,819	2,730,400
Oct. 12.	T. W. Burrell.	10,000	1,000,000
Sept. 10.	E. Hall.	19,000	1,728,000
July 16.	E. Nelson & Co.	14,000	1,750,000
Aug. 24.	do	17,500	1,700,000
1893.			
June 6.	Blind River Lumber Co.		700,000
May 19.	Chew Bros.		1,500,000
June 7.	do		1,500,000
May 27.	A. T. Bliss.	25,000	2,750,000
do 19.	Eddy, Bros. & Co.	26,000	3,000,000
do 24.	do	22,500	3,000,000
June 6.	do	22,500	^a 1,687,500
do 8.	do	20,500	2,500,000
do 13.	Ed. Hall.	14,630	3,000,000
do 19.	Holland & Emery Lumber Co.	30,000	^a 2,250,000
do 9.	Alb. Pack.	25,000	2,000,000
do 2.	Turner & Fisher.	24,000	^a 1,800,000
do 15.	do	24,000	2,500,000
do 19.	do	20,000	2,000,000
do 10.	Rarburn Lumber Co.		150,000
do 15.	Howey & Sons.		1,000,000
do 26.	do		1,000,000
May 26.	J. P. Charlton.		1,250,000
June 6.	do		1,000,000
do 28.	Wm. Peter.		3,500,000
do 10.	Perry Lumber Co.		25,000
do 20.	Nelson & Co.	18,500	2,000,000
May 30.	Alb. Pack.	40,000	2,000,500
June 27.	do	15,000	999,500
do 18.	Turner & Fisher.	22,297	2,661,760
May 2.	Saginaw Lumber Co.	30,000	2,000,000
do 26.	do		2,000,000
June 23.	do	20,000	1,500,000
do 15.	Spanish River Lumber Co.	42,000	4,200,000
do 15.	George Aviz.		282,000
Total for 1892-93			143,788,158

^a These figures represent the estimated number of feet, where only number of logs was given, each log being taken to contain 75 feet.

Forest wealth of Canada.

TABLE 18.

CONSUMPTION OF WOOD IN CANADA.

CENSUS, 1891—Product of the Forest.

Square timber	865,896 tons.	43,294,800 cubic ft.
Logs, masts and spars.	48,852,225 pcs.	407,101,875 "
Staves	92,260 M.	791,128 "
Railroad ties and fence poles	39,048,162 pcs.	117,144,486 "
Telegraph poles.	303,861 "	3,282,175 "
Fire, lath and pulpwood and bark.	11,439,541 cords.	1,464,061,248 "
Shingles.	939,736 M.	9,397,360 "
Total		<u>2,045,073,072</u> "

VALUE of Product and of amount consumed.

Product, 1890-91.	\$80,071,415
Net export, 1890-91.	24,075,031
Balance left for consumption.	\$55,996,384 or \$11.59 <i>per capita</i> , 70 p.c. of product.

QUANTITY consumed.

70 p.c. of 2,045,073,072 cubic feet, total product.
 1,431,551,150 " consumption in year.
 296.2 " *per capita*.

TABLE 19.

SHIPMENTS of Lumber from the River St. Lawrence to the River Plate, during the Season of 1894.—(Supplied by the Export Lumber Co.)

FROM MONTREAL.			Loaded by.	FROM OTHER PORTS ON THE ST. LAWRENCE.		
Date.	Vessel.	Pine.		Date.	*Vessel.	Spruce.
		Ft.			Ft.	
Sept. 21..	Bqt. Argentina .	623,896	Shepard & Morse Lumber Co.	July 6..	Bk. Ariemore	850,000
" 29..	Bk. Runnymede.	558,830	ExportLum.Co.,Ltd.	" 10..	" Giovanni.....	650,000
Oct. 6..	" Louis	820,514	" "	" 12..	" Ophelia.....	1,040,000
" 15..	" H. B. Cann .	1,192,958	" "	Aug. 25..	" Allegro M.....	483,000
" 16..	" Strathmuir..	1,024,012	" "	" 29..	" Kriemhild.....	600,000
" 27..	Bqt. C. W. James.	671,465	" "	Sept. 17..	" China.....	574,000
" 31..	Sp. Albania.....	1,165,753	" "	" 26..	" Gotha.....	636,000
" 31..	SS. Doris.....	1,289,053	" "	" 27..	" Jas. L. Harway	775,000
Nov. 8..	" Turret Bay .	1,530,434	" "	" 29..	" Magdala.....	905,000
" 14..	" Turret Age .	1,585,315	" "	Oct. 26..	" Silenzio.....	504,000
				" 29..	" Leviathan....	810,000
		10,467,230				7,827,000

* The other ports are Three Rivers, Quebec, Bersimia, Chicoutimi, the latter generally the largest.

TOTAL Shipments from the St. Lawrence.

Pine.....	10,467,230 feet.
Spruce.....	7,827,000 "
	<u>18,294,230</u> "

PREVIOUS Shipments.

	Ft.		Ft.
1893.....	17,625,507	1881.....	16,147,941
1892.....	19,141,826	1880.....	10,420,080
1891.....	2,428,625	1879.....	12,476,150
1890.....	7,660,669	1878.....	10,855,246
1889.....	35,313,573	1877.....	8,787,928
1888.....	18,089,716	1876.....	3,437,000
1887.....	34,036,076	1875.....	10,123,000
1886.....	20,088,204	1874.....	16,262,293
1885.....	31,344,543	1873.....	36,037,919
1884.....	36,938,548	1872.....	28,234,968
1883.....	18,768,652	1871.....	15,005,935
1882.....	24,419,827	1870.....	25,145,183

Forest wealth of Canada.

TABLE 20.

FIFTY YEARS' EXPORTS OF TIMBER AND DEALS, &c., FROM THE PORT OF QUEBEC,
1845 TO 1894.

The following table shows a great shrinkage in the past fifty years in the wood trade of the port of Quebec. As regards square and waney white and red pine, the diminution practically coincides with the falling off in the cut in Ontario and Quebec, which is nearly all shipped from this port. This is not so much the case with the square hardwood timber, some of which is shipped elsewhere, and some, especially the oak, shipped from Quebec, comes from the United States. In respect to deals and staves, the decrease chiefly indicates a loss of business to the port of Quebec, large quantities being shipped from other ports. The great rise in the prices of timber, deals, &c., is as remarkable as the falling off in the quantities. This table is the compilation of Mr. W. A. Schwartz, the Swedish Consul at Quebec, who acknowledges his indebtedness to the firm of J. Bell Forsyth & Co., whose trade reports have great authority. The table is included in a special number of "Timber and Woodworking Machinery," London, in January, 1895, which gives to its readers much information concerning the forests and industries connected therewith, of Canada and the United States.

FIFTY YEARS' EXPORTS OF TIMBER AND DEALS, &c., FROM

YEAR.	AVERAGE FAIR PRICE AT CLOSE OF SEASON.		AVERAGE FAIR PRICE AT CLOSE OF SEASON.		Oak.
	White Pine.		Red Pine.		
	Square.	Waney.	Square.	Waney.	
Cub. ft.	Cub. ft. d. d.	Cub. ft. d. d.	Cub. ft. d. d.	Cub. ft. d. d.	Cub. ft.
1845	15,828,880				1,397,440
1846	14,392,220				1,742,680
1847	9,626,640	3 to 5			1,804,080
1848	10,709,680	3 " 5			879,040
1849	11,621,920	4 " 5			1,128,320
1850	13,040,520	4 " 5½			1,116,240
1851	15,941,600	6 " 8½			1,124,200
1852	15,695,920	3½ " 7			1,036,480
1853	17,399,480	6 " 8¾			1,068,320
1854	19,612,320	6½ " 10			1,335,920
1855	10,843,226	6½ " 9½			946,708
1856	13,992,920	5 " 9½			1,062,360
1857	19,246,480	4 " 9½			1,507,030
1858	13,388,380	4 " 9½			1,011,580
1859	14,822,240	4½ " 9½			1,006,280
1860	18,252,600	5½ " 10			1,485,400
1861	19,447,920	5½ " 9½	8 to 11		1,725,160
1862	15,493,080	3½ " 10	9 " 11		1,463,680
1863	23,147,520	3½ " 10½	10 " 13		2,085,280
1864	20,032,520	3½ " 10½	10 " 13		2,463,560
1865	19,007,800	5½ " 12	No record		2,699,800
1866	15,541,320	6 " 12	13 to 16		1,897,480
1867	14,773,880	5 " 10½	14 " 16		1,793,880
1868	15,278,720	7½ " 13	14 " 16		2,368,480
1869	14,673,200	7½ " 15	14 " 16		2,048,000
1870	14,141,920	8½ " 18	19 " 21		3,232,700
1871	14,673,000	7 " 18	18 " 21		2,950,360
1872	15,514,680	10 " 19	17 " 21½		2,952,040
1873	10,580,240	9½ " 18	16 " 20		3,085,160
		cts. cts.	cts. cts.	cts. cts.	
1874	14,513,920	16 " 27	24 " 32	1,413,280	3,433,280
1875	10,099,000	16 " 30	28 " 32	1,519,240	2,208,040
1876	13,883,600	13 " 27	29 " 34	1,831,360	3,243,520
1877	14,897,800	12 " 25	26 " 32	1,961,360	3,632,200
1878	8,149,120	10 " 25	22 " 27	1,249,840	1,667,360
1879	5,300,440	9 " 30	26 " 31	813,800	1,681,000
1880	11,552,560	14 " 36	32 " 39	1,433,200	2,316,840
1881	9,101,180	20 " 40	37 " 42	922,000	1,883,360
1882	7,912,160	20 " 40	35 " 40	1,024,680	1,957,320
1883	10,427,000	18 " 38	31 " 36	1,048,960	2,132,880
1884	6,047,680	15 " 38	32 " 37	614,280	2,212,520
1885	6,758,240	15 " 38	33 " 39	644,160	1,526,400
1886	4,524,760	14 " 35	31 " 38	405,520	1,051,360
1887	5,127,080	16 " 38	31 " 38	405,720	1,012,160
1888	6,020,000	22 " 42	37 " 44	465,360	1,178,920
1889	6,872,960	20 " 44	38 " 45	397,680	1,538,080
1890	5,498,380	18 " 35	32 " 40	355,520	1,119,160
1891	4,715,120	16 " 35	28 " 37	249,350	897,280
1892	5,300,440	14 " 35	30 " 40	379,680	1,127,580
1893	4,092,280	14 " 35	30 " 43	312,640	1,013,160
1894	3,468,600	16 " 42	36 " 45	146,120	937,840

Forest wealth of Canada.

the Port of Quebec, 1845 to 1894 (inclusive).

TIMBER.

YEAR.	Average Fair Price at Close of Season.		Elm.	Average Fair Price at Close of Season.		Ash.	Average Fair Price at Close of Season.	
	Cub. ft. d.	d.		Cub. ft.	Cub. ft. d.		d.	Cub. ft. d.
1845			1,423,920			207,080		
1846			1,793,320			188,960		
1847	14	to 00	1,591,520	5	to 8	91,040	4	to 6
1848	14	" 00	1,171,760	3	" 6	59,680	3	" 6
1849	12	" 14	1,413,600	4	" 8	66,600	3	" 6
1850	13	" 14	1,526,640	7	" 10	47,280	3	" 6
1851	14	" 16	1,423,880	7½	" 10½	102,720	3	" 6
1852	12	" 15	893,880	8	" 9	86,440		No record.
1853	20	" 24	1,520,600	12	" 14	82,200		
1854	20	" 27	1,463,600	12	" 22	106,160		
1855	15	" 16	1,028,750	5	" 18	40,140		
1856	15	" 18	1,454,030	7	" 18	102,730		
1857	18	" 20	1,319,380	10	" 18	138,610		
1858	16	" 19	785,840	10	" 15	95,560		
1859	13	" 16	1,050,760	7½	" 14	170,160		
1860	14	" 17	1,021,560	7½	" 14	88,440		
1861	15	" 18	1,269,320	9	" 14	96,560		
1862	14	" 15	1,099,200	9½	" 13	99,840		
1863	24	" 30	2,128,840	12	" 15	306,760		
1864	18	" 22	1,957,960	8	" 14	121,800		
1865	16	" 17	1,217,240	8½	" 12	114,800		
1866	19	" 20	1,332,360	10	" 16	158,000		
1867	18	" 00	1,229,400	12	" 16	146,320		
1868	18	" 20	1,324,200	12	" 17	141,920		
1869	18	" 20	1,276,200	12	" 17	185,686		
1870	19	" 23	1,297,760	9	" 15½	200,720		
1871	19	" 23½	1,219,560	10	" 15	279,040		
1872	27	" 30	1,061,400	21	" 22	265,080		
1873	27	" 30	1,062,680	22	" 25½	245,280		
1874	34	" 42	1,171,280	28	" 30	365,560	26	to 27
1875	34	" 42	619,800	21	" 27	248,080	24	" 26
1876	31	" 43	947,360	20	" 30	341,480	25	" 27
1877	32	" 40	1,013,200	20	" 26	300,040	25	" 26
1878	28	" 36	559,760	20	" 26	139,880	27	" 28
1879	32	" 42	544,040	22	" 30	172,480	28	" 32
1880	43	" 52	1,041,800	23	" 30	293,520	28	" 32
1881	43	" 50	797,160	23	" 28	355,680	28	" 32
1882	42	" 52	778,360	23	" 30	297,040	28	" 30
1883	40	" 49	739,920	34	" 35	346,320	32	" 35
1884	40	" 49	678,000	28	" 35	360,080	28	" 32
1885	40	" 48	884,160	28	" 34	262,480	27	" 30
1886	38	" 47	407,120	25	" 29	174,360	26	" 29
1887	42	" 49	405,040	25	" 29	191,840	27	" 30
1888	43	" 52	504,080	27	" 35	217,720	27	" 30
1889	43	" 52	791,800	27	" 33	335,360	27	" 30
1890	42	" 49	530,260	25	" 30	15,280	25	" 28
1891	43	" 47	657,800	23	" 30	130,320	25	" 28
1892	45	" 51	637,800	25	" 32	177,880	30	" 34
1893	45	" 51	421,840	25	" 32	168,840	30	" 32
1894	45	" 51	528,880	25	" 32	134,920	28	" 32

FIFTY Years' Exports of Timber and Deals, &c., from

YEAR.	TIMBER.				STAVES.			
	Birch.	Average Fair Price at Close of Season	Tamarack.	Average Fair Price at Close of Season	All kinds.	Average Fair Price at Close of Season		Pine.
	Cub. ft.	Cub. ft. cts.	Cub. ft.	Cub. ft. d. d.	Mille.	Mer. £	Std. £	* Que. Std.
1845.	183,360				5,181			3,260,015
1846.	147,880		771,489		3,446			2,081,260
1847.	108,560		1,372,520	6 to 7½	2,563	8 to 30		2,714,225
1848.	92,360		124,400	3 " 5	3,043	8 " 32½		2,480,628
1849.	134,120		146,400	6 " 7	3,933	8 " 45		2,282,390
1850.	180,200		36,600	8 " 9	4,074	7½ " 35		2,207,086
1851.	122,800		12,680	7 " 8	4,017	8½ " 37½		1,418,584
1852.	94,360		51,440	7½ " 8	3,213	8 " 45		1,342,391
1853.	101,760		9,600	15 " 0	3,428	10½ " 45		2,425,369
1854.	51,160		78,760	5 " 12	4,287	14 " 60		2,604,656
1855.	118,770		37,000	5 " 12	3,580	13 " 52½		1,867,119
1856.	161,856		72,010	5 " 11	3,462	15 " 57½		2,709,772
1857.	175,580		163,740	5 " 12	4,523	15½ " 50		4,591,000
1858.	131,920		38,240	4 " 7	4,122	13 " 45		4,433,662
1859.	272,200		60,160	4 " 9	4,355	10 " 42½		4,054,514
1860.	462,160		58,240	5 " 9	5,014	12 " 42½		4,668,850
1861.	255,320		50,240	No record.	3,861	13 " 47½		4,927,817
1862.	165,480		57,120	5 " 11	3,473	14 " 47½		3,493,299
1863.	430,720		243,680	4½ " 11	5,775	13½ " 50		5,207,158
1864.	358,280		190,120	4½ " 10	4,537	12 " 57		3,686,000
1865.	374,680		280,000	5 " 12	4,463	14 " 50		4,888,348
1866.	402,000		221,880	6 " 13	5,128	18 " 67½		4,778,822
1867.	381,560		87,360	5 " 10	4,416	17½ " 52½		3,613,234
1868.	409,000		72,280	7 " 12	4,452	16½ " 52½		4,632,019
1869.	562,720		70,720	7 " 10	3,527	15 " 52½		4,544,666
1870.	341,160		24,440	6 " 10	4,864	16½ " 62½		5,191,306
1871.	292,080		17,800	7 " 10	4,660	19 " 67		4,166,834
1872.	399,760		6,200	8 " 15	4,322	24 " 75		5,267,422
1873.	737,880		2,480	12 " 18	4,276	20 " 75		4,650,238
1874.	749,760	cts. cts.	1,960	cts. cts.	3,149	\$ 64 " 290		5,170,441
1875.	238,360	24 to 00	600	15 " 17	2,369	66 " 260		4,618,944
1876.	466,800	15 " 22	2,960	9 " 16	3,237	70 " 280		5,632,474
1877.	507,320	18 " 19	2,640	10 " 16	3,998	70 " 260		5,341,329
1878.	202,760	16 " 18	1,040	9 " 12	1,750	62 " 230		3,692,996
1879.	196,480	18 " 19		9 " 12	1,503	65 " 220		4,202,219
1880.	558,840	18 " 19		10 " 14	1,213	75 " 320		5,823,263
1881.	273,880	18 " 19		10 " 14	1,082	85 " 335		3,876,187
1882.	213,680	22 " 24		10 " 15	1,300	90 " 385		3,148,688
1883.	233,040	23 " 26		10 " 13	1,482	80 " 360		3,933,072
1884.	241,120	22 " 24		10 " 15	883	75 " 320		2,442,946
1885.	457,160	22 " 24		10 " 15	621	75 " 300		2,376,737
1886.	236,680	20 " 21		10 " 15	459	65 " 220		2,271,069
1887.	192,680	20 " 22		12 " 18	526	70 " 260		1,365,510
1888.	165,760	21 " 23		15 " 20	157	80 " 325		1,189,490
1889.	479,280	21 " 23		15 " 18	188	85 " 330		1,307,842
1890.	493,740	20 " 23		17 " 20	219	85 " 330		1,075,992
1891.	148,320	20 " 23		15 " 20	90	80 " 320		704,472
1892.	345,840	20 " 23		15 " 19	4	90 " 350		861,945
1893.	121,480	20 " 23		15 " 19		90 " 350		728,300
1894.	189,920	21 " 23		15 " 19		90 " 350		479,700

Forest wealth of Canada.

the Port of Quebec, &c., 1845 to 1894 (inclusive)—*Concluded.*

DEALS.

YEAR.	AVERAGE FAIR PRICE AT CLOSE OF SEASON.						Spruce.	Average Fair Price at Close of Season.		
	1st Quality.		Michigan.		Floated.			*Que. Std.	Pt. Std. H.	
	Pt. £	Std. £	Pt. \$	Std. \$	Pt. £	Std. £			£	£
1845							527,259			
1846							386,807			
1847	10½	to 11			9	“ 9½	389,614	6	to 7	
1848	9	“ 9½			8	“ 8½	361,881	5	“ 6	
1849	9	“ 9½			8	“ 8½	618,881	5	“ 6	
1850	10	“ 11			9	“ 00	614,277	7	“ 7½	
1851	11	“ 00			11	“ 00	548,165	7½	“ 0	
1852	13	“ 00			No record.		655,115	6½	“ 7	
1853	14½	“ 15½			14	to 15½	653,106	8	“ 0	
1854	15	“ 00			13	“ 00	871,835	9	“ 0	
1855	12	“ 00			10	“ 00	451,063	6	“ 0	
1856	12	“ 00			10	“ 11	533,191	7	“ 7½	
1857	13½	“ 14½			12	“ 13	No record.	8½	“ 9	
1858	13½	“ 14			12	“ 13	“	9	“ 0	
1859	15	“ 00			13	“ 14	“	8	“ 0	
1860	15	“ 00			14	“ 15	“	7¾	“ 0	
1861	14½	“ 15			13	“ 13½	“	6½	“ 7	
1862	14	“ 15			13	“ 00	“	7½	“ 0	
1863	16½	“ 17			13½	“ 14	“	7½	“ 0	
1864	16½	“ 00			13½	“ 13¾	711,237	7½	“ 0	
1865	15½	“ 16½			14½	“ 15	982,232	8	“ 0	
1866	18½	“ 00			15	“ 15½	771,485	8½	“ 9	
1867	16½	“ 17			15½	“ 00	869,908	8	“ 8½	
1868	18	“ 18½			17	“ 17½	1,210,778	8	“ 0	
1869	18	“ 18½			17	“ 17½	849,025	7	“ 7½	
1870	20	“ 21			18½	“ 19	1,184,135	7¾	“ 8	
1871	20	“ 21			19½	“ 22	885,240	8	“ 0	
1872	24	“ 00			23	“ 00	1,753,850	9	“ 0	
1873	27	“ 00			26½	“ 00	1,567,049	10½	“ 11	
	\$	\$	\$	\$	\$	\$		\$	\$	
1874	90	“ 92			No record.		2,660,714	38	“ 0	
1875	95	“ 100			90	to 00	1,715,238	34	“ 36	
1876	90	“ 100	100	to 120	90	“ 94	2,046,650	32	“ 36	
1877	95	“ 98	98	“ 104	88	“ 90	2,978,237	32	“ 33	
1878	90	“ 94	94	“ 100	84	“ 00	2,889,661	32	“ 0	
1879	96	“ 100	104	“ 110	88	“ 00	2,852,500	34	“ 36	
1880	108	“ 112	000	“ 120	92	“ 96	3,200,130	40	“ 44	
1881	108	“ 112	000	“ 120	92	“ 104	3,097,529	40	“ 44	
1882	108	“ 112	000	“ 120	98	“ 104	2,787,309	39	“ 40	
1883	108	“ 110	125	“ 127	104	“ 106	2,729,635	36	“ 38	
1884	115	“ 118	130	“ 140			2,636,465	38	“ 40	
1885	120	“ 125	135	“ 140			2,473,529	42	“ 44	
1886	112	“ 120	120	“ 130			2,318,835	39	“ 42	
1887	115	“ 120	120	“ 130			2,309,489	40	“ 43	
1888	115	“ 120	120	“ 130			2,448,156	42	“ 45	
1889	115	“ 120	125	“ 135			3,584,468	42	“ 45	
1890	115	“ 120	125	“ 130			3,975,576	40	“ 42	
1891	115	“ 120	120	“ 130			2,280,049	40	“ 42	
1892	115	“ 123					3,629,783	40	“ 43	
1893	115	“ 123					3,540,000	40	“ 43	
1894	115	“ 123					3,462,800	40	“ 43	

* 72 Que. Std. = 1 Ptg. Std.

Forest wealth of Canada.

ADDENDA.

Since the foregoing report and appendices were prepared various additional items of information have come to hand.

SMALL LOGS FROM TREE TOPS.

The Lieutenant-Governor in Council for the province of Quebec has issued the following order :—

“Whereas, by Order in Council No. 562 of the 10th of October, 1892, the rates of dues chargeable on pine logs of a diameter of eleven inches or less, made out of the top of trees cut on timber limits, have been fixed at eighty cents instead of one dollar and thirty cents per thousand feet, board measure, for the year 1892-93, because the greater part of the license holders leave on the ground the tops of the pine trees cut on their limits, because the rates of dues which they would have to pay on small logs made out of these tops is too high to allow them to float them down with profit to the mill, and the fact of leaving this small part of trees on the ground constitutes a danger of spreading forest fires, besides the deprivation of revenue resulting from the loss of this unused small part of the trees ; Whereas, the same reasons exist to apply the same reduction to the wood of the same kind cut during the seasons of 1893-94 and 1894-95 ; It is ordered that the rates of dues chargeable on pine logs of eleven inches in diameter or of less dimension made of the top of trees cut on timber limits during the seasons of one thousand eight hundred and ninety-three, one thousand eight hundred and ninety-four (1893-94), and one thousand eight hundred and ninety-four, one thousand eight hundred and ninety-five (1894-95), be fixed at eighty cents per thousand feet, board measure.”

QUEBEC TIMBER RESOURCES.

The Quebec authorities are taking evidence from experts on the subject of the timber resources of the province.

CHARCOAL FOR IRON SMELTING.

At the annual session of the Mining Association of the province of Quebec, a paper by Mr. T. J. Drummond was read on “Charcoal, its bearing on the utilization of our forests.” The writer pointed out that as charcoal was the only known fuel natural to this province for the smelting of iron ore, this important product of the mine must be governed by the product of the forest. If we could not produce cheap charcoal and see a supply ahead, any attempt to establish an iron industry in this province on anything like an extensive scale would mean failure. Consequently every care and thought should be given as to how our forests could be conserved and utilized. To preserve these forests and utilize them to the best advantage for the country should be both a national and provincial care, and, if necessary, vast districts should be set aside for this purpose, over which the Government should exercise full control. He referred to the large quantities of unmerchantable wood left by the timber merchants in the various lumber districts of the province, and pointed out that it was a menace to the greater forest wealth, by reason of the fires that were frequently brought about through farmers clearing their lands by burning this waste material. He suggested that the Legislature should set aside large areas of land from which the merchantable timber had been cut, and preserve it for the building up of the iron industry. This would give constant

and remunerative employment to colonists in clearing the land, and would give them another crop of wood that was as valuable in its way as any crop in the wheat fields of the West. In Sweden, he pointed out, the Government had long ago realized the importance of conserving their forests, and had established national schools for teaching the people the scientific manufacture of charcoal. The charcoal and iron industry was and must always be, if successful, a settlers', farmers' and people's home industry, and for this reason it was especially deserving of national support and encouragement. Our farmers should be taught and enabled to use for their own and the nation's profit everything useful that the land had to give. Here were mighty crops rotting, wasting and burning which might be made, as in Sweden, the mainstay of the nation.

WOOD PULP, UNITED STATES DUTIES, &c.

In consequence of seizures of wood pulp from Canada by the customs at Detroit for undervaluation, an appeal was made to the United States General Board of Appraisers. Several hearings were given the matter, and the board handed down a decision to the Treasury Department ruling against the Collector and in favour of the Laurentides Pulp Company, fixing the valuation of the wood pulp at 60 cents a hundred pounds or \$13.44 a long ton of 2,240 pounds.

The United States consular report for December, 1894, described a new use for wood pulp, under a German patent—the making of wood mosaic for floors. The Consul-General at Frankfort reports that pergumene, or imitation parchment paper, used for wrapping butter and other oily substances, as a damp proof covering, &c., is being manufactured from cellulose or wood fibre. The consul at Bradford described the manufacture of artificial silk from cellulose, for which a company is being formed.

FOREST RESERVATIONS IN THE UNITED STATES.

The Philadelphia "Times" publishes the following: "The Pennsylvania State Forestry Commission has decided to ask the Legislature for an appropriation for the purchase of 120,000 acres of land in order that it may create a public forest reservation and very much can be looked for from a beginning like this. The State of New York has a forest reservation of 3,000,000 acres, and proposes to increase its size. The State of Pennsylvania, through the Forestry Commission, may see the way to a start towards forest parks that will in the future maintain the watersheds and give to the rivers and runs their volume in the dry seasons. The periods of drought have been serious and costly enough in the last fifteen years to establish a dozen reservations of the character outlined by the commission."

EXPORTS FROM PORT OF QUEBEC.

The exports of timber, deals, &c., from the Port of Quebec for the last fifty years, with their prices, have been added to the statistical tables, as "Table 20."

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