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SESSIONAL PAPERS

VOLUME 18

SECOND SESSION OF THE TWELFTH PARLIAMENT

OF THE

DOMINION OF CANADA

SESSION 1912-13





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Fifth Census of Canada, 1911—Manufactures for 1910 as enumerated in June, 1911.

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Report of the Auditor General for the year ended 31st March, 1912 Volume 1, Parts A
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White, 14th January, 1913.
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CONTENTS OF VOLUME 2.

2. The Public Accounts of Canada, for the fiscal year ended 31st March, 1912. Presented by Hon. Mr. White, 26th November, 1912.

Printed for distribution and sessional papers.

3. Estimates of sums required for the service of the Dominion for the year ending 31st March, 1914. Presented by Hon. Mr. White, 3rd February, 1913.

Printed for distribution and sessional papers.

 Supplementary Estimates of sums required for the service of the Dominion for the year ending on the 31st March, 1913. Presented by Hon. Mr. White, 10th March, 1913.

Printed for distribution and sessional papers.

 Supplementary Estimates of sums required for the service of the Dominion for the year ending on 31st March, 1914. Presented by Hon. Mr. White, 20th May, 1913.

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6. List of Shareholders in the Chartered Banks of the Dominion of Canada as on December 31, 1911. Presented by Hon. Mr. White, 26th November, 1912.

Printed for distribution and sessional papers.

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7. Report on dividends remaining unpaid, unclaimed balances and unpaid drafts and bills of exchange in Chartered Banks of the Dominion of Canada, for five years and upwards prior to 31st December, 1911. Presented by Hon. Mr. White, 26th November, 1912.

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- 10. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1912. (Part I.—Canadian Trade). Presented by Hon. Mr. Foster, 30th January, 1913.
 Printed for distribution and sessional papers.
- 10a. Report of the Department of Trade and Commerce, for the year ended 31st March, 1912. (Part II.—Canadian Trade with (1) France, (2) Germany, (3) United Kingdom, and (4) United States). Presented by Hon. Mr. Foster, 12th December, 1912.

 Printed for distribution and sessional papers

- 10c. Report of the Department of Trade and Commerce for the fiscal year ended 31st March 1912. (Part VI.—Subsidized Steamship Services). Presented, 1913.

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10/. Report of Trade and Commerce for fiscal year ended 31st March, 1912. (Part VII.— Trade of Foreign Countries, Treaties and Conventions). Presented, 1913.

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11. Report of the Department of Customs for the year ended 31st March, 1912. Presented by Hon. Mr. Reid, 28th November, 1912—Printed for distribution and sessional papers,

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- 13. Report of the Department of Inland Revenue for year ended 31st March, 1912. (Part II.—Inspection of Weights and Measures, Gas and Electricity). Presented by Hon. Mr. Nantel, 25th November, 1912.....Printed for distribution and sessional papers.
- 14. Report of the Department of Inland Revenue for year ended 31st March, 1912. (Part III.—Adulteration of Food). Presented by Hon. Mr. Nantel, 25th November, 1912.
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16. Report of the Director and Officers of the Experimental Farms for the year ending 31st March, 1912. Presented by Hon. Mr. Burrell, 14th January, 1913.

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20c. Express Statistics of the Dominion of Canada, for the year ended 30th June, 1912. Presented by Hon. Mr. Cochrane, 12th February, 1913.

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- 33. Report of the Joint Librarians of Parliament for year 1912. Presented by Hon. Tag
- 34. Report of the Minister of Justice as to Penitentiaries of Canada, for the fiscal year ended 31st March, 1912. Presented by Hon. Mr. Doherty, 27th November, 1912. Printed for distribution and sessional papers.
- 35. Report of the Militia Council for the fiscal year ending 31st March, 1913. Presented by Hon. Mr. Hughes, 14th January, 1913. .. Printed for distribution and sessional papers.
- 36. Report of the Department of Labour for the fiscal year ending 31st March, 1912. Presented by Hon. Mr. Crothers, 28th November, 1912.

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- 36a. Fifth Report of the Registrar of Boards of Conciliation and Investigation of the proceedings under "The Industrial Disputes Investigation Act, 1907," for the fiscal year ending 31st March, 1912. Presented by Hon. Mr. Crothers, 28th November, 1912. Printed for distribution and sessional papers
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- 37. Eighth Annual Report of the Commissioners of the Transcontinental railway, for the year ended 31st March, 1912. Presented by Hon. Mr. Cochrane, 12th December, 1912. Printed for distribution and sessional papers.
- 38. Report of the Department of the Naval Service, for the fiscal year ending 31st March, 1912. Presented by Hon. Mr. Hazen, 28th November, 1912. Printed for distribution and sessional papers,
- 39. "Miscellaneous Unforeseen Expenses," from the 1st April, to the 21st November, 1912, in accordance with the Appropriation Act of 1912. Presented by Hon. Mr. White,
- 40. Statement of Treasury Board over-rulings, under Section 44, Consolidated Revenue and Audit Act. Presented by Hon. Mr. White, 26th November, 1912......Not printed.
- 41. Statement in pursuance of Section 17 of the Civil Service Insurance Act, for the year ending 31st March, 1912. Presented by Hon. Mr. White, 26th November, 1912.

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- 42. Statement of Receipts and Expenditures of the Ottawa Improvement Commission to 31st March, 1912. Presented by Hon. Mr. White, 26th November, 1912..... Not printed.
- 43. Statement of Governor General's Warrants issued since the last Session of Parliament on account of 1912-13. Presented by Hon. Mr. White, 26th November, 1912.

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44. Statement of Superannuation and Retiring Allowances in the Civil Service during the year ending 31st December, 1912, showing name, rank, salary, service, allowance and cause of retirement of each person superannuated or retired, also whether vacancy is filled by promotion or by appointment, and salary of any new appointee. Presented

- 45. Return (in so far as the Department of the Interior is concerned) of copies of all Orders in Council, plans, papers and correspondence relating to the Canadian Pacific railway, which are required to be presented to the House of Commons, under a Resolution passed on 20th February, 1882, since the date of the last return, under such Resolution. Presented by Hon. Mr. Roche, 26th November, 1912........Not printed.

- 48b. An Act respecting the Naval Service of Canada." (Copy of Order in Council, No. P.
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- 52a. Return of Orders in Council passed between the 1st August, 1911, and 30th September, 1912, in accordance with the provisions of Section 5 of the Dominion Land Survey Act, Chapter 21, 7-8 Edward VII. Presented 5th December, 1912, by Hon. Mr. Roche. Not printed.

- 53. A detailed statement of all bonds or securities registered in the Department of the Secretary of State of Canada, since last return (28th November, 1911) submitted to the Parliament of Canada under Section 32 of Chapter 19, of the Revised Statutes of Canada, 1906. Presented by Hon. Mr. Coderre, 4th December, 1912......Not printed.

- 56. Orders in Council passed between the 1st August, 1911, and 30th September, 1912, in accordance with the provisions of the Rocky Mountains Park Act, Chapter 60, Revised Statutes of Canada, 1906. Presented by Hon. Mr. Rogers, 4th December, 1912.

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- 56a. Return of Orders in Council passed between the 1st August, 1911, and 30th September, 1912, in accordance with the provisions of the Forest Reserves and Park Act, Section 19, of Chapter 10, 1-2 George V. Presented by Hon. Mr. Roche, 5th December, 1912.

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Presented by Hon. Mr. Borden, 18th December, 1912.

Printed for distribution and sessional papers.

- 59. Schedules of Trade Transactions between the West Indies and Canada, the United States and the United Kingdom, compiled from the West Indian blue books and statistics. Presented by Hon. Mr. Foster, 12th December, 1912.

Printed for distribution and sessional papers.

- 61d. Return to an Order of the House of the 4th December, 1912, for a copy of all papers letters, complaints, telegrams, reports, and other documents in the possession of the Post Office Department relating to the dismissal of John Milward, Postmaster at Stormont, Guysborough County, N.S. Presented 14th January, 1913.—Mr. Sinclair.

Not printed.

- 61f. Return to an Address to His Royal Highness the Governor General of the 25th March, 1912, for a copy of all letters, telegrams, memorandums and Orders in Council, relating to the dismissal of Mr. W. W. Hayden, late wharfinger of the government wharf at Digby, Nova Scotia. Presented 14th January, 1913.—Mr. MacLean (Halifax).

- 61h. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Fred. E. Cox, engineer lobster hatchery at Isaac's Harbour, Guysborough County, N.S., and of the evidence taken and report of investigation held by H. P. Duchemin in regard to the same. Presented 14th January, 1913.—Mr. Sinclair.....Not printed. 43849—3

- 611. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of John Cummings, assistant at the lobster hatchery at Isaac's Harbour, Nova Scotia, and of evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same. Presented 14th January, 1913.—Mr. Sinclair......Not printed.
- 61n. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents relating to the dismissal of Joseph Shean, harbour master at North Sydney, N.S., in the riding of North Capo Breton and Victoria. Presented 14th January, 1913.—Mr. McKenzie.....Not printed.

- 61r. Return to an Order of the House of the 9th December, 1912, for a return showing all the public officers of the Inland Revenue Department in the County of St. Jean Iberville, removed by the present Government since 1st May, 1912, together with the names and duties of such persons, the reasons of their dismissal, the nature of the

complaints against them, the names of the persons who brought these complaints; also a copy of all correspondence relating thereto, and of the reports of inquiries in the cases where such have been held. Presented 14th January, 1913.—Mr. Demers.

Not printed.

- 61u. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports, recommendations and evidence taken under investigation by Dr. Shentliff, relating to the dismissal of Charles O. Jones, postmaster of Bedford, County of Missisquoi. Presented 15th January, 1913.—Mr. Kay.

- 61z. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, correspondence, documents and reports relating to the dismissal of Allan Kinney, of Linwood, Antigonish County, Nova Scotia, a sectionman on the Intercolonial rail-43849—3½

way, and for a statement in detail of the expenses in connection with the investigation of the charges against him. Presented 16th January, 1913 .- Mr. Chisholm

- 61aa. Return to an Order of the House of the 9th December, 1912, for a copy of all letters. correspondence, documents and reports relating to the dismissal of Charles Landry, of Pomket, Antigonish county, Nova Scotia, a sectionman on the Intercolonial railway, and for a statement in detail of the expenses connected with the investigation of the charges against him. Presented 16th January, 1913 .- Mr. Chisholm (Anti
- 61bb. Return to an Order of the House of the 4th December, 1912, for a copy of all papers, documents, reports, correspondence, &c., relating to the dismissal of Patrick Decoste, an employee on the ferry steamer Scotia between Mulgrave and Point Tupper on the
- 61cc. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Harry E. McDonald, assistant engineer at St. Peters Canal, Richmond County, N.S. Presented 13th January, 1913.-Mr. Kyte.
- 61dd. Return to an order of the House of the 9th December, 1912, for a copy of all letters, papers, documents, telegrams, and charges relating to a complaint against Neil Ross sectionman on the Intercolonial railway at West River, County of Pictou, and of the evidence taken at the investigation, of the report of the commissioner thereon, and of all letters, papers or other documents relating to the appointment of his successor.
- 61ee. Return to an Order of the House of the 9th December, 1912, for a copy of all letters. correspondence, documents and reports relating to the dismissal of James Armstrong. of Heatherton, Antigonish County, N.S., a sectionman on the Intercolonial railway, and for a statement in detail of the expenses connected with the investigation of the charges against him. Presented 16th January, 1913.-Mr. Chisholm (Antigonish).

- 61ff. Return to an Order of the House of the 4th December, 1912, for a copy of all letters, telegrams and other documents, relating to the dismissal of Thomas J. Gray, as car inspector on the Intercologial railway at Westville, County of Pictou. Presented
- 61gg. Return to an Order of the House of the 9th December, 1912, for a copy of all corre spondence, telegrams and reports relating to the dismissal of Colin Macdonald, of James River Station, County of Antigonish, as Intercolonial sectionman, and the appointment of his successor. Presented 16th January, 1913 .- Mr. Chisholm (Anti-
- 61hh. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents relative to the dismissal of A. T. Gannon, car repairer and inspector Intercolonial railway at North Sydney, Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 16th January.

61ii. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, correspondence, documents, and reports relating to the dismissal of Huber Myatte, Tracadie, Antigonish County, Nova Scotia, a sectionman on the Intercolonial railway and for a statement in detail of the expenses connected with the investigation of the charges against him. Presented 16th January, 1913.—Mr. Chisholm (Antigonish).

- 6111. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, telegrams and other documents relative to the dismissal of D. J. McDougall, section foreman, Intercolonial railway, Grand Narrows, Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 17th January, 1913.—Mr. McKenzie. Not printed.
- 61nn. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of John P. Meagher, foreman deckhand on steamship Scotia, Mulgrave, Guysborough County, N.S., and of all evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 17th January, 1913.—Mr. Sinclair......Not printed.
- 61pp. Return to an Order of the House of the 11th December, 1912, for a copy of all papers, documents and correspondence relating to the dismissal of Captain C. E. Miller from the 75th Regiment. Presented 17th January, 1913.—Mr. Maclean (Halifax).

- 61qq. Return to an Order of the House of the 9th December, 1912, for a copy of all correspondence, letters and telegrams relating to the dismissal of J. N. N. Poirier, collector of excise at Victoriaville, Quebec, and also of the inquiry made by N. Garceau, by the Minister of Inland Revenue, and especially of two affidavits given by Ludger Frechette and Joseph Faucher. Presented 17th January, 1913.—Mr. Browillard. Not printed.

- 61ww. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of John A. McRea, lightkeeper, at Margaree Island, Inverness County, Nova Scotia, of the evidence taken and report of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation. Presented 17th January, 1913.—Mr. Chisholm (Inverness)......Not printed.

- 61bbb. Return to an Order of the House of the 4th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of M. Wilson Lawlor, harbour commissioner at North Sydney, Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 17th January, 1913.—Mr. McKenzie.

Not printed.

61ddd. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal .? P. J. McDonald, harbour commissioner at North Sydney, Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 17th January, 1913.—Mr. McKenzie.

Not printed.

- 61eec. Return to an Order of the House of the 9th December, 1912, for a return showing:

 The names of all lightkeepers in the Province of Nova Scotia who were dismissed from office or employment since 10th October, 1911, together with the date of each dismissal. Presented 17th January, 1913.—Mr. Maelean (Halifax).....Not printed.
- 61fff. Return to an Order of the House of the 4th December, 1912, for a return showing the detail and number of dismissals from public offices in the Department of Marine and Fisheries to this date in the County of Bonaventure, the names of the dismissed occupants, the reasons for their dismissal, the complaints against such officials and a copy of all correspondence with respect to the same, and of all reports of investigations where such were held; as well as a list of the new appointments made by the department, with names, residences, salaries and duties, and a copy of all recommendations of such appointments. Presented 17th January, 1913.—Mr. Marcil (Bonaventure).

- 61hhh. Return to an Order of the House of the 4th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents in the possession of the Department of Marine and Fisheries relating to the dismissal of John W. Davis, fishery officer, Guysborough, N.S. Presented 17th January, 1913.—Mr. Sinclair.

- 61mmm. Return to an Order of the House of the 1st April, 1912, for a copy of all letters. petitions, complaints, declarations and other documents in the possession of the Department of Marine and Fisheries, relating to the dismissal of Mr. Alfred Laloude, employed in the warehouse of the Government yards at St. Joseph de Sorel and the appointment of his successor. Presented 20th January, 1913.—Mr. Cardin..Not printed.
- 61nnn. Return to an Order of the House of the 1st April, 1912, for a copy of all letters telegrams, complaints or other papers or documents in the possession of the Government or any department thereof, relating to the dismissal of James Webber, light-keeper, Tor Bay Point, N.S. Presented 20th January, 1913.—Mr. Sinclair.

Not printed.

- 61ppp. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, letters, telegrams and other documents relating to the dismissal of Angus Smith, pilot on the steamer Earl Grey, and also of all the evidence taken at the latest investigation held in regard to the said complaints, and of the report of the investigation with regard to the same. Presented 20th January, 1913—Mr. Macdonald.

- 61rr. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of William Hackett, harbour commissioner at North Sydney, Nova Scotia, in the riding

of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin in regard to same, and a detailed statement of the expenses of such investigation. Presented 20th January, 1913.—Mr. McKenzic.

- 61yyy. Return to an Order of the House of the 10th December, 1912, for a return of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of A.B. Cox, Superintendent of Reduction Works at Canso, Guysborougn County, N.S., and of all evidence taken and report of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation. Presented 20th January, 1913.—Mr. Kyte..........Not printed.
- 61zzz. Return to an Order of the House of the 9th December, 1912, for a copy of all complaints and charges made against Jeffrey Crespo, sub-collector of Customs at Harbour au Bouche, Antigonish County, Nova Scotia, and of all letters, telegrams, correspondence and reports relating in any way to his dismissal and the appointment of a successor. Presented 20th January, 1913.—Mr. Chisholm (Antigonish).

61aaaa. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, papers, charges and correspondence between the Department of Customs and all other persons regarding the dismissal from office of Thomas Cameron, preventive officer at Andover, N.B., and also of all evidence and reports thereon with reference to the dismissal of the said officer. Presented 20th January, 1913.—Mr. Michaud.

Not printed.

- 61eccc. Return to an Order of the House of the 9th December, 1912, for a copy of all complaints, accusations, inquiries, reports, correspondence, and of all documents relating to the dismissal of Lucien O. Thisdale, a customs employee at Valleyfield, Quebec, and the appointment of his successor. Presented 20th January, 1913.—Mr. Papineau.

Not printed.

61dddd. Return to an Order of the House of the 11th December, 1912, for a copy of air letters, telegrams, correspondence, reports, and other documents relating to the dismissal of Alexander Macdonald of Doctor's Brook, Antigonish County, as sub-collector of customs. Presented 20th January, 1913.—Mr. Chisholm (Antigonish).

- 61ffff. Return to an Order of the House of the 10th December, 1912, for a copy of all documents concerning the dismissal of Charles Mennier, customs preventive officer at Marieville, Quebec. Presented 20th January, 1913.—Mr. Lemieux.....Not printed.
- 61gggg. Return to an Order of the House of the 5th December, 1912, for a copy of al' charges, correspondence, letters, telegrams, instructions, minutes of evidence taken and had on any inquiry investigation had, held or taken, and of all other papers and documents relating to the dismissal of George H. Cochrane, Collector of Customs at the Port of Moncton, New Brunswick; together with a copy of all letters and other correspondence between the Honourable Minister of Customs, and the member representing the County of Westmorland, New Brunswick, in this House, and of all letters, papers, telegrams, recommendations, appointments, or other papers and documents relating to the appointment of a collector of customs to succeed the said George H. Cochrane. Presented 20th January, 1913.—Mr Emmerson......Not printed.
- 61hhhh. Return to an Order of the House of the 22nd January, 1912, for a copy of all correspondence, documents, recommendations and reports respecting the dismissal of C Michaud, postmaster at St. Germain, Kamouraska, and the appointment of his successor. Presented 20th January, 1913.—Mr. Lapointe (Kamouraska)....Not printed.

- 619999. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents relative to the dismissal of William Marsh, preventive officer at Little Pond, Sydney Mines, in the riding of North Cape Breton and Victoria. Presented 24th January, 1913.—Mr. McKenzie.

 Not printed.

- 61ssss. Return to an Address to His Royal Highness the Governor General of the 11th December, 1912, for a copy of all papers, documents, orders in council, telegrams, letters, &c., relating to the dismissal from office of Lemuel Bent, late Collector of Customs at Oxford, N.S. Presented 24th January 1913.—Mr. Maclean (Halifax).

 Not printed.

 - 61uuuu. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, letters, telegrams, reports and other documents concerning the dismissal of Donald J. Hachey, Collector of Customs at Bathurst, County of Gloucester, and the appointment of his successor. Presented 24th January, 1913.—Mr. Turgeon. Not printed.
- - 61xxxx. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of James Grantmyre, preventive officer at Little Bras D'or, N.S., in the riding of North Cape Breton and Victoria. Presented 24th January, 1913.—Mr. McKenzie.

 Not printed.

- 67jjjjj. Return to an Order of the House of the 9th December, 1912, for a copy of all letters correspondence, documents and reports relating to the dismissal of William R. Fougere, of Frankville, Antigonish County, N.S., a sectionman on the Intercolonial railway, and for a statement in detail of the expenses connected with the investigations of the charges against him. Presented 27th January, 1913.—Mr. Chisholm (Antigonish).

 Not printed.
- 61kkkkk. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, correspondence, documents and reports relating to the dismissal of John Melanson, of Afton, Antigonish County, N.S., a sectionman on the Intercolonial railway, and for a statement in detail of the expenses connected with the investigation of the charges against him. Presented 27th January, 1913.—Mr. Chisholm (Antigonish).

 Not printed.
- 61lllll. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dis missal of Ronald D. McDonald, fishery overseer, at Broad Cove, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation. Presented 27th January, 1913.—Mr. Chisholm (Inverness).

- 61nnnn. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of A. R. Forbes, fishery overseer at North Sydney, Nova Scotia in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 27th January, 1913.—Mr. McKenzie.

Not printed

- 61qqqqq. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of M. Muce, lightkeeper at Cheticamp Island, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation.

 Presented 29th January, 1913.—Mr. Chisholm (Inverness).....Not printed.

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- Glwwww. Return to an Order of the House of the 9th December, 1912, for a copy of all correspondence, letters, telegrams, complaints, and of the evidence given at investigation, if one was held, relating to the dismissal of Mr. A. J. Gosselin, acting preventive officer of customs at St. Albans, Vermont, through the port of St. Armand, County of Missisquoi. Presented 4th February, 1913.—Mr. Kay.....Not printed.
- 61xxxxx. Return to an Order of the House of the 4th December, 1912, for a copy of an papers, letters, telegrams, and petitions for and against the dismissal of James W. Bannon, preventive officer of customs at St. Agnes de Dundee, County of Huntingdon also a copy of the report of investigation and evidence, if any, submitted to investigating commissioner. Presented 4th February, 1913.—Mr. Robb.....Not printed.

- 61 (6i). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Duncan Gillies, fishery overseer at Baddeck, C.B., in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 7th February, 1913.—Mr. McKenzie.....Not printed.

- 61 (6m). Return to an Order of the House of the 15th January, 1913, for a copy of ail charges, correspondence, letters, telegrams and other documents relative to the dismissal of Donald McAulay, lightkeeper, Plaister, Baddeck Bay, C.B., riding of North Cape Breton and Victoria, and of the evidence taken and reports of investigation held by H. P. Duchemin in regard to the same, and a detailed statement of the expenses of such investigation. Presented 11th February, 1913.—Mr. McKenzie.

Not printed.

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- 61 (6q). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Captain Roderick McDonald, tide waiter, at Big Bras D'Or, riding of North Cape Breton and Victoria, N.S., and of the evidence taken and reports of investigation held by H. P. Duchemin in regard to the same, and a detailed statement of the expenses of such investigation. Presented 11th February, 1913.—Mr. McKenzie.

Not printed.

- 61 (6r). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of James Maloney, customs officer at Dingwall, riding of North Cape Breton and Victoria, N.S., and of the evidence taken and reports of investigation held by H. P. Duchemin in regard to the same, and a detailed statement of the expenses of such investigation. Presented 11th February, 1913.—Mr. McKenzie.....Not printed.

- 61(6u). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of J. A. McNeil, customs officer at Grand Narrows, Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 11th February, 1913.—Mr. McKenzie.

Not printed.

61 (6v). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of George Burchell, custom house officer at Sydney Mines, Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 11th February, 1913.—Mr. McKenzic.

Not printed.

61 (6w). Return to an Order of the House of the 15th January, 1913, for a copy of ail papers, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of W. H. Saver, collector of customs at Cardinal, Ont., and the appointment of his successor. Presented 11th February, 1913.—Mr. McMillan.

Not printed.

- 61 (6x). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, telegrams and other documents relative to the dismissal of Captain George Livingstone, custom officer at Big Bras D'Or, Cape Breton, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same and a detailed statement of the expenses of such investigation. Presented 11th February, 1913.—Mr. McKenzie.
 - Not printed.
- 61 (y). Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, reports and other documents and papers relating to the dismissal of H. Lacasse, as postmaster at Wendover, County of Prescott, Ontario, and the appointment of his successor. Presented 13th February, 1913.—Mr. Proulx...Not printed
- 61 (7a). Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all papers, memoranda, orders in council, and correspondence relating to the dismissal of A. H. Stratton, late postmaster at Peterborough, Ont. Presented 17th February, 1913.—Mr. Maclean (Halifax).

- 61 (7e). Return to an Order of the House of the 29th January, 1913, for a copy of ail letters, papers, charges and correspondence between the Department of Marine and Fisheries and all other persons, regarding the dismissal of Jos. Lord, keeper of lighthouses at Pointe à la Mule on the River Richelieu, Parish of St. Blaise, County of Saint Jean and Iberville and of all reports thereon with reference to the dismissal of the said Mr. Lord. Presented 19th February, 1913.—Mr. Demers......Not printed.
- 61 (7f). Return to an Order of the House of the 15th January, 1913, for a copy of all correspondence, letters, telegrams and petitions concerning the dismissal of Henri Friolet, wharfinger at Caraquet, and Richard Southwood, wharfinger and agent of the Storm Signal Service at Bathurst, Gloucester County, N.B., and the appointment of their successors. Presented 19th February, 1913.—Mr. Turgeon......Not printed.

- 61 (7h). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Captain Pope as lighthouse keeper at Scatarie, Cape Breton South, N.S., and of the evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same. Presented 19th February, 1913.—Mr. Carroll.....Not printed
- 61 (7i). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Captain W. W. Lewis, as shipping master at Louisburg, Cape Breton South, Nova Scotia, and of evidence taken and reports of investigation held by H. P. Duchmin, in regard to the same. Presented 19th February, 1913.—Mr. Carroll.

- 61 (7k). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of George Hines, lighthouse keeper at South Ingonish, riding of North Cape Breton and Victoria, N.S., and of the evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same, and a detailed statement of the expenses of such investigation. Presented 20th February, 1913.—Mr. McKenzie..Not printed.
- 61 (7m). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Archibald McDonald, preventive officer at Mull River, Inverness County, Nova Scotia. Presented 20th February, 1913.—Mr. Chisholm (Inverness)..Not printed.

- 61 (70). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, telegrams, reports and other documents relative to the dismissal of Edward C. Humphreys, of Trenton, N.S., as an officer of the Inland Revenue Department and to the appointment of his successor. Presented 20th February, 1913.—Mr. Macdonald.
 Not printed.

- 61 (7t). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissor of Joseph Day, customs officer at Little Bras D'Or, C.B., in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 25th February, 1913.—Mr. McKenzie.....Not printed.
- 61 (7v). Return to an Order of the House of the 17th February, 1913, for a copy of all papers, letters, telegrams, evidence, &c., given at the investigation or investigations and of reports of such investigations, relating to the dismissal of Edouard D Chiasson, sub-collector of customs at Lamèque, Gloucester County, and the appoint ment of his successor. Presented 25th February, 1913.—Mr. Turgeon....Not printed.

- 61 (7y). Return to an Order of the House of the 29th January, 1913, for a copy of all papers, charges, correspondence, letters, telegrams and other documents relating to the dismissal of Thomas Cameron, preventive officer at Andover, N.B., and of the evidence taken and reports of investigation held by Mr. E. T. C. Knowles, in connection with the same. Presented 26th February, 1913.—Mr. Michaud.....Not printed.

- 61 (8c). Return to an Order of the House of the 15th January, 1913, for a copy of all papers, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of W. A. Scott, lockmaster at Cardinal, Ontario, and of the appointment of his successor. Presented 27th February, 1913.—Mr. McMillan.

- 61 (8e). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of John Merrifield, lockmaster at Burritts Rapids, Ont., and the appointment of his successor. Presented 27th February, 1913.—Mr. Chisholm.

 Not printed.

- 61 (80). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Michael Laughtin, bridgeman at Burritts Rapids.

 Ontario. Presented 27th February, 1913.—Mr. Papineau.......Not printed.

- 61 (8s). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Adam Henderson, bridgemaster at Cardinal, Ontario, and of the appointment of his successor. Presented 27th February, 1913.—Mr. Murphy.

 Not printed.
- 61 (8u). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of John C. McNeil, lighthouse keeper at Grand Narrows, in the riding of North Cape Breton and Victoria. Presented 27th February, 1913.—Mr. McKenzie.
 Not printed.
- 61 (8v). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of A. A. Chisholm, fishery overseer at Margaree Forks, Inverness County, Nova Scotia. Presented 28th February, 1913.—Mr. Chisholm (Inverness)....Not printed.
- 61 (8w). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Charles E. Aucoin, collector of customs at Cheticamp, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by Mr. H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 28th February, 1913.—Mr. Chisholm (Antigonish).

- 61 (91). Return to an Order of the House of the 10th February. 1913, for a copy of all papers, letters, documents and orders relative to the dismissal of Fred Shultz as caretaker of the armouries at Kentville, Nova Scotia, and of the appointment of William Shoop in his place and also for a statement of the stores in said armouries in the years 1910, 1911, 1912, respectively, and for a copy of all orders and regulations relative to the duties of such caretaker. Presented 3rd March, 1913.—Mr. Macdonald. Not printed.
- 61 (9h). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Dr. Freeman O'Neil, from the Marine Hospital a Louisburg, Cape Breton South, N.S., and of evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same. Presented 10th March, 1913.—Mr. Carroll..Not printed.

- **61** (9n). Return to an Order of the House of the 29th January, 1913, for a copy of all papers, letters, telegrams and other documents respecting the dismissal of Robert Pragnall from the position of agent of the Dominion Land Office at Swift Current and the appointment of his successor. Presented 10th March, 1913.—Mr. Knowles.

- 61 (9p). Return to an Order of the House of the 9th December, 1912, for a return showing the detail and number of dismissals from public offices by the present government to this date in the riding of Saskatoon, with the names of the dismissed occupants, the reasons for their dismissals, the complaints against such officials, and all correspondence with respect to the same, and of all reports of investigations, in casewhere such were held. Presented 17th March, 1913.—Mr. McCraney.....Not printed
- 61 (9q). Return to an Order of the House of the 17th February, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports, affidavits and other documents in the Department of Inland Revenue, respecting the dismissal of J. N. Poirier, Collector of Excise at Victoriaville, County of Arthabaska, and the names of the witnesses interested, with a copy of the evidence and a statement of expenses of the said inquiry. Presented 17th March, 1913.—Mr. Brouillard......Not printed.
- 61 (9r). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of John G. Morrison, fishery inspector at Englishtown, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 18th March, 1913.—Mr. Kyte............Not printed

- 61 (9t). Return to an Order of the House of the 27th January, 1913, for a copy of all documents, petitions, letters, correspondence, inquiries and reports concerning the dismissal of Evariste Talbot, employed in the general freight office of the Intercolonial. Presented 18th March, 1913.—Mr. Lapointe (Kamouraska)......Not printed
- 61 (9u). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Department of Railways or any department of the government, relating to the dismissal of Philip H. Ryan, an employee of the Intercolonial railway at Mulgrave, N.S., and if there was an investigation, the names of all witnesses examined, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented 18th March, 1913.—Mr. Sinclair..Not printed.
- 61 (9v). Return to an Order of the House of the 3rd February, 1913, for a return showing how many postmasters and other post office employees were removed from office respectively, from the 1st of July, 1896, to the 1st of October, 1911, and the number in each province; and from the 10th of October, 1911, up to date, with the number in each province; also the number of post offices in operation in each province on the 1st July, 1896. Presented 26th March, 1913.—Mr. Rainville............Not printed.

- 61 (9y). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Post Office Department, regarding any change in any post office or postmastership in Bonaventure County, between 5th December, 1912, up to date. Presented 26th March, 1913.—Mr. Marcil (Bonaventure).....Not printed.
- 61 (9z). Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all papers, documents, correspondence, orders in council, &c., relative to the dismissal of S. A. Johnson, late postmaster at Petite Rivière, Lunenburg County, N.S. Presented 26th March, 1913.—Mr. MacLean (Halifax).

- 61 (10d). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents relative to the dismissal of Frank Dunlop, postmaster at Groves Point, Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expense of such investigation. Presented 26th March, 1913.—Mr. McKenzie.

Not printed.

61 (10e). Return to an Order of the House of the 10th December, 1912, for a copy of all letters, telegrams, complaints, petitions and other documents relating to the investigation of A. W. Salsman, postmaster at Middle Country Harbour, N.S., and to the appointment of his successor. Presented 26th March, 1913.—Mr. Sinclair.

- 61 (10i). Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of all correspondence, orders in council and all other papers or documents in any way relating to the dismissal of Alexander Marion, from the position of postmaster at Rockland, Ontario. Presented 26th March, 1913.—Mr. Murphy
 Not printed.

- 61 (101). Return to an Order of the House of the 29th January, 1913, for a return showing the names of the postmasters in the County of Joliette, who have been dismissed from 1896 to September, 1911; their respective parishes; dates of their dismissals; the reasons alleged; whether an inquiry was made in each case; on whose recommendation in each case the dismissals were made; names of successors in each case, and on whose recommendation were they appointed. Presented 26th March, 1913.—Mr. Guilbault.

Not printed.

61 (10m). Return to an Order of the House of the 29th January, 1913, for a copy of all papers, documents, evidence, reports, letters, correspondence, &c., relating to the dis missal of T. Doane Crowell, postmaster at Shag Harbour, Shelburne County, N.S. and the appointment of his successor. Presented 26th March, 1913.—Mr. Law.

- 61 (10u). Return to an Order of the House of the 4th December, 1912, for a return showing the foremen employed at the various public works in the County of Gloucester on the 21st of September, 1911, who have been dismissed since by the present administration, containing their names, reasons of dismissal, nature of the charges made against them, also a copy of all correspondence connected with the same and reports of in quiries, in cases where such inquiries have been instituted. Presented 28th March, 1913.—Mr. Turgeon.
 Not printed

- 61 (10x). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Robert C. Morrison, postmaster at St. Peters, Richmond County, N.S., and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation, together with a copy of all recommendations, letters, telegrams and other papers relating to the appointment of Mr. Morrison's successor. Presented 31st March, 1913.—Mr. Kyte.

 Not printed
- 61 (10y). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents relative to the dismissal of Richard Dugas, storm signal attendant at Alder Point, Nova Scotja, in the riding of North Capo Breton and Victoria. Presented 4th April, 1913.—Mr. McKenzie. Not printed.

- 61 (11b). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, telegrams, correspondence, reports and documents touching the dismissals of Alexander R. McAdam as fishery officer for the County of Antigonish, N.S., and the appointment of his successor. Presented 4th April, 1913.—Mr. Chisholm (Antigonish). Not printed.

- 61 (11h). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dis missal of Frederick Mitchell, from the position of postmaster at Dominion, Cape Breton South, N.S., and of the evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same. Presented 9th April, 1913.—Mr. Carroll.

- 61 (11m). Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dis missal of A. G. McDonald, postmaster of North East Margaree, Inverness County. Nova Scotia, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 14th April, 1913.—Mr. Chisholm (Inverness)...Not printed.
- 61 (11n). Return to an Order of the House of the 9th December, 1912, for a return showing in detail the number of dismissals from public office by the present government to this date, in the constituency of Qu'Appelle, with the names of the dismissed officers, and the reason for their dismissal, the complaints against such officials and a copy of all correspondence, petitions, papers and documents with respect to the same, and of all notes of evidence and reports of investigations in cases where they have taken place. Presented 14th April, 1913.—Mr. Thomson (Qu'Appelle).......Not printed

- 61 (11r). Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dis missal of Leon N. Poirier, postmaster at Descouse, Richmond County, N.S., and of the evidence taken and of the reports of investigation held by H. P. Duchemin in regard to the same and a detailed statement of the expenss of such investigation; and a copy of all papers relating to the appointment of his successor. Presented 15th April, 1913.—Mr. Kyte.
 Not printed.

- 61 (11x). Return to an Order of the House of the 29th January, 1913, for a copy of a lacharges, correspondence, letters, telegrams and other documents relating to the dismissal of George Gunn, postmaster at French Village, Prince Edward Island. Presented 15th April, 1913.—Mr. Hughes (Kings, P.E.I.)..................Not printed.
- 61 (11y). Return to an Order of the House of the 4th December, 1912, for a return showing the detail and number of dismissals from public offices by the present government to this date in the riding of Mackenzie, together with the names of the dismissed occupants, the reasons for their dismissal, the complaints against such officials, and a copy of all correspondence with respect to the same, and of all reports of investigations, where any such were held. Presented 15th April, 1913.—Mr. Cash. Not printed.

61 (11z). Return to an Order of the House of the 7th April, 1913, for a copy of all charges investigated by Commissioner W. J. Code, and also of the evidence taken and the report made by the said commissioner. Presented 16th April, 1913.—Mr. Murphy.

lot printed.

- 61 (12c). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Joseph McMullen, from the post office at Bridgeport, Cape Breton South, Nova Scotia, and of evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same. Presented 16th April, 1913.—Mr. Carroll....Not printed.

- 61 (12f). Return to an Address to His Royal Highness the Governof General of the 7th December, 1911, for a copy of all papers, correspondence and orders in council in connection with and relating to the dismissal from office of public officials from each of the departments of government since the 1st day of October last past, including both Inside and Outside Service. Presented 18th April, 1913.—Mr. Carvell.....Not printed.
- 61 (12g). Return to an Address to His Royal Highness the Governor General of the 3rd March, 1913, for a copy of all papers, documents, correspondence, evidence, order in council, &c., relative to the dismissal of Edward Doucett, sub-collector of customs. Digby County, N.S. Presented 21st April, 1913.—Mr. McLean (Halifax).

Not printed.

61 (12h). Return to an Address to His Royal Highness the Governor General of the 3rd March, 1913, for a copy of all papers, documents, correspondence, evidence, orders in council, &c., relative to the dismissal of Mr. LeBlanc, sub-collector of customs, Church Point, Digby County, N.S. Presented 21st April, 1913.—Mr. McLean (Halifax).

61 (12i). Return to an Order of the House of the 19th March, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of John C. Bourinot, chief customs officer at Port Hawkesbury, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by Mr. H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 21st April, 1913.—Mr. Chisholm (Inverness).

Not printed.

- 61 (121). Return to an Order of the House of the 31st March, 1913, for a copy of all complaints and charges against James Falconer, of Newcastle, County of Northumberland. New Brunswick, as correspondent of the Labour Gazette at Newcastle, and of all letters, telegrams and other correspondence relating in any way to his dismissal and the appointment of a successor. Presented 22nd April, 1913.—Mr. Loggie..Not printed.
- 61 (12m). Return to an Order of the House of the 19th March, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dimissal of John B. Chisholm, lightkeeper at Port Hastings, Inverness County. Nova Scotia, and the evidence taken and report of investigation held by Mr. H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 24th April, 1913.—Mr. Chisholm (Inverness).......Not printed.
- 61 (120). Return to an Order of the House of the 31st March, 1913, for a copy of all charges, correspondence, letters, telegrams, and other documents relative to the diministration of D. J. Morrison, boatman in the customs service at Big Bras D'or, North Cape Breton and Victoria, N.S., and of the evidence taken and of reports of the investigation held by H. P. Duchemin, in regard to the same, with a detailed statement of expenses of such investigation. Presented 25th April, 1913.—Mr. McKenzie.

 Not printed
- 61 (12p). Return to an Order of the House of the 31st March, 1913, for a copy of all charges, correspondence, letters, telegrams, and other documents relative to the dimissal of Rod McLeod, boatman in the customs service at Big Bras D'or, North Cape Breton and Victoria, N.S., and of the evidence taken and of reports of the investigation held by H. P. Duchemin, in regard to the same, with a detailed statement of expenses of such investigation. Presented 25th April, 1913.—Mr. McKenzie.

- 61 (12v). Return to an Order of the House of the 31st March, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Captain P. J. Wilcox, from the customs office at Louisburg, Cape Breton South, Nova Scotia, and of evidence taken and reports of investigations held by H. P. Duchemin, in regard to the same. Presented 29th April, 1913.—Mr. Carroll.

Not printed

- 61 (12w). Return to an Order of the House of the 31st March, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of M. J. McKennon, from the customs office at Glace Bay, Cape Breton South, Nova Scotia, and of evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same. Presented 29th April, 1913.—Mr. Carvell.....Not printed
- 61 (12x). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Captain John Arsenault, telegraph line repairer at Alder Point, Cape Breton, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 29th April, 1913.—Mr. McKenzie.

61 (12y). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Mrs. John Arsenault, telegraph operator at Alder Point, N.S., in the riding of North Cape Breton and Victoria. Presented 2nd May, 1913.—Mr. McKenzie.

Not printed

- 61 (13b). Return to an Order of the House of the 31st March, 1913, for a copy of .ll charges, correspondence, letters, telegrams and other documents relating to the dismissal of H. G. McKay, lighthouse keeper at Bird Island, Big Bras D'or, North Cape Breton and Victoria, and of the evidence taken, and of reports of the investigation held by H. P. Duchemin, in regard to the same, with a detailed statement of expenses of such investigation. Presented 5th May, 1913.—Mr. McKenzie.......Not printed.
- 61 (13d). Return to an Order of the House of the 17th February, 1913, for a copy of all correspondence, letters, telegrams, reports, recommendations and other documents bearing on or having relation to the dismissal of J. H. Leduc, as medical port officer of the port of Three Rivers, P.Q. Presented 7th May, 1913.—Mr. Burcau..Not printed.

- 61 (13h). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Angus R. McDonald, postmaster at Broad Cove Chapel, Inverness County. Nova Scotia. Presented 7th May, 1913.—Mr. Chisholm (Inverness)....Not printed.

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- 61 (13j). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, telegrams, complaints, petitions or other documents of any kind received by the government, or any member or official thereof, relating to the conduct of J. Morgan, one time postmaster of the village of Ailsa Craig. Ontario, as such, and relating to an investigation into said conduct. Presented 7th May, 1913.—Mr. Ross.

Not printed

- 61 (131). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Allan Gillis, postmaster at Gillisdale, South West Margaree, Inverness County, Nova Scotia. Presented 8th May, 1913.—Mr. Chisholm (Inverness).

Not printed.

61 (13m). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of David Shaw, postmaster at Marsh Brook, North East Margaree, Inverness County, Nova Scotia. Presented 8th May, 1913.—Mr. Chisholm (Inverness).

- 61 (13n). Return to an Order of the House of the 29th January, 1913, for a copy of all papers concerning the investigation and dismissal of Helen Joubert, postmistress at Sayabec, Quebec. Presented 8th May, 1913.—Mr. Lemieux............Not printed.
- 61 (13p). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Dan. McEachern, postmaster at McEachern's Mills, Broad Cove Chapel, Inverness County, Nova Scotia. Presented 8th May, 1913.—Mr. Chisholm (Inverness).
 Not printed.

- **61** (13*u*). Dismissal of N. C. Lyster, late postmaster at Lloydminster, Sask.—(*Senate*).

 Not printed.
- 61 (13v). Return to an Order of the House of the 2nd April, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Mrs. Maggie Cameron, postmistress at Achosnach, Inverness County, Nova Scotia. Presented 9th May, 1913.—Mr. Chisholm (Inverness)......Not printed.
- 61 (13w). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of David Fraser, postmaster at North East Margaree, Inverness County, Nova Scotia. Presented 9th May, 1913.—Mr. Chisholm (Inverness)......Not printed.

- 61 (13z). Return to an Order of the House of the 3rd February, 1913, for a return showing the number of employees of the Department of Public Works who have been dismissed in the County of Berthier since the 21st September, 1911, giving the names of the said employees; if an inquiry was held in each case; on whose recommendation, in each case, these dismissals were made; the names of those appointed successors to these persons and on whose recommendation. Presented 12th May, 1913.—Mr. Beland Not printed.

- 61 (141). Return to an Order of the House of the 16th April, 1913, for a copy of all paper, documents, evidence, reports, &c., relating to the dismissal of B. C. Kanock, late shipping master at Lunenburg, N.S. Presented 4th June, 1913.—Mr. McLean (Halifax).
 Not printed.

- 61 (140). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and docal ments in the possession of the Post Office Department, or any department of the government relating to the dismissal of Captain Freeman Myers, postmaster at Cole Harbour, Guysborough County, N.S., and if there was an investigation, the names of all witnesses examined, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented 4th June, 1913.—Mr. Sindair.

- 61 (14p). Return to an Order of the House of the 4th December, 1912, for a return showing all public officers removed by the present government in the district of St. James, Montreal, together with the names and duties of such persons, the reasons of their dismissal, the nature of the complaints brought against them, and a copy of all correspondence relating thereto, and of reports of inquiries in the cases where such have been held. Presented 4th June, 1913.—Mr. Lapointe (Montreal).......Not printed
- 61 (14r). Return to an Order of the House of the 4th December, 1912, for a return showing the names of all officials in the district of Sunbury and Queens, who have been dismissed or removed from office since September, 1911, the reason for such dismissal or removal, the evidence taken at any investigation held in regard to them, the reports upon such investigations, the name of any successor appointed in place of dismissed officials, and a copy of all letters, charges, complaints and recommendations in regard to the said removals or dismissals, or in regard to the appointment of theu successors. Presented 4th June, 1913.—Mr. McLean (Sunbury)............Not printed.
- 61 (14s). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Department of Marine and Fisheries, or any depart ment of the government relating to the dismissal of Levi Munroe, harbour master at

White Head, N.S., and if there was an investigation, the names of all witnesses examined, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented 4th June, 1913.—Mr. Sinclair........................Not printed.

- 61 (14w). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and doc ments in the possession of the Department of Railways and Canals, or any department of the government, relating to the dismissal of Alex. McInnis, car inspector of the Intercolonial railway at Mulgrave, N.S., and if there was an investigation, the names of all witnesses examined, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented 6th June, 1913.—Mr. Sinclair. Not printed.

- 62. Return to an Order of the House of the 4th December, 1912, for a return showing the number of all contracts cancelled in the County of Bonaventure since the 1st of October, 1911; the names of the contractors, the prices paid to them, the reasons for the cancellation in each case; and a copy of any investigations and reports had into the causes of such cancellations, the names of the new contractors and the prices paid to them in each case. Presented 14th January, 1913.—Mr. Marcil (Bonaventure).

Not printed

- 62b. Return to an Order of the House of the 9th December, 1912, for a copy of all corre spondence, letters, telegrams, complaints and other documents relating to the cancelling of the contract for eonveying His Majesty's mails, entered into on the 1st day of January, 1912, between the Honourable Postmaster General and Mr. J. C. Beeman of Guthrie, County of Missisquoi; together with the reason for the cancellation of this contract, the price paid to Mr. Beeman, the name of the present contractor and the price paid to him. Presented by Hon. Mr. Pelletier.—Mr. Kay......Not printed.

- 62f. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, and other documents relating to the establishment of a rural mail delivery service between Merigonish Station, County of Pictou, and Arisaig, in the County of Antigonish, in the year 1912. Presented 17th February, 1913.—Mr. Macdonald.

62j. Return to an Order of the House of the 3rd February, 1913, for a return showing what changes, if any, have been made in the contracts for the carrying of the mails in the County of Berthier, since the 21st September, 1911; in what parishes, on what date, and for what reason; to whom have the new contracts been granted, and if a tender was asked for in each case. Presented 14th April, 1913.—Mr. Béland.

Not printed

62k. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petiticus, telegrams, bonds, reports and other papers and documents in the possession of the Post Office Department, or any department of the government, relating to the letting of the mail contract between Guysborough and Charlos Cove, County of Guysborough, N.S., during the year 1912. Presented 28th April, 1913.—Mr. Sinclair.

- **62**n. Return to an Order of the House of the 7th April, 1913, for a copy of all correspondence, telegrams, &c., exchanged between the Honourable the Postmaster General and Dr. Faucher, of Quebec, concerning the purchase of a certain patented lock for mail bays. Presented 7th May, 1913.—Mr. Lapointe (Kamouraska)......Not printed.
- 62p. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, reports, bonds of indemnity, and all other papers and documents in the possession of the Post Office Department, or any department of the government, relating to the contract for carrying the mails between Linwood or some point of the Intercolonial railway. County of Antigonish, N.S., and Grosvenor, County of Guysborough, N.S. Presented 9th May, 1913.—Mr. Sinclair....Not printed.

- 62s. Return to an Address to His Excellency the Administrator of the 7th April, 1913, for a copy of all orders in council, reports of experts and contracts, in connection with

the different purchases of rural mail delivery boxes made by the Post Office Depart ment since 1908, until 1st January, 1912. Presented 21st May, 1913.—Mr. Lemieux.

Not printed.

- 62r. Return to an Order of the House of the 31st March, 1913, for a copy of all correspondence concerning the purchase of new locks for mail bags by the Post Office Department from the Ontario Equipment Company. Presented 4th June, 1913.—Mr. Carrell.

 Not printed.
- 62w. Return to an Order of the House of the 17th February, 1913, for a copy of all correspondence, letters, telegrams, memoranda, tenders, bonds and all other documents relative to the contract for the carrying of the mail between the post office and Can adian Pacific Railway station at Three Rivers and vice versa, since the eleventh day of October, 1911, to date. Presented 4th June, 1913.—Mr. Tobin.......Not printed.

- 67b. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all advertisements, tenders, contracts, orders in council memoranda, papers, letters and correspondence in any way relating to a subsidized steamship service between Canadian ports and any ports of the British West Indies, or any proposed improvement or extension of such steamship service since 1st November, 1911 to the present time. Presented 15th January, 1913............Not printed.

- 67g. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all papers, documents, petitions, orders in Council, memoranda, correspondence, &c., by and between the government of Canada or any member thereof, and the government of the province of British Columbia, or any member thereof, since 1st May, 1912, relating to the subject to an increase of the provincial subsidy to the said province. Presented 16th April, 1913.—Mr. Maclean (Halifax).

- 68. Copies of general orders promulgated to the militia for the period between 2nd November, 1911. Presented by Hon. Mr. Hughes, 14th January, 1913.

 Not printed.
- 69. Return to an Address to His Excellency the Eight Honourable Sir Charles Fitzpatrick. P.C., &c., administrator, of the 31st March, 1913, for a copy of all papers, documents, petitions, letters, telegrams, orders in council and other papers and documents in possession of the Department of Customs, relating to the duty payable on twine used for fishing purposes, and especially relating to the construction placed upon item 682-of the Customs Tariff. Presented 23rd May, 1913.—Mr. Sinclair......Not printed.
- Return to an Order of the House of the 30th November, 1912, for a return showing:—
 The date when the present Canadian Pure Food Act, now known as the
 - 1. The date when the present Canadian Pure Food Act, now known as the Adulteration Act, R.S.C., was enacted.
 - 2. What foods, beverages or drugs have standards of strength and purity under the Act been fixed, and what are the dates when such standards become operative.
 - 3. What foods, beverages or drugs have standards of strength and purity been prepared and recommended from time to time by the chief analyst, which have not been put in force, and why were such standards not put in force.
 - 4. How many cases of adulteration together with cases which show standards of quality below those required by the Adulteration Act, have been ascertained by the Dominion analyst since the said Act came into operation.
- 71. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, negotiations, proposals in writing and other papers and documents in the possession of the government, or any department thereof, relating to reciprocity in trade with the United States, bearing date between the 1st day of January, 1890, and the 31st day of December, 1891. Presented 14th January, 1913.—Mr. Sinclair.

- 72c. Return to an Order of the House of the 27th January, 1913, for a copy of all documents, letters, correspondence, recommendations, reports, &c., relating to the appointment of Mr. J. Begin as manager of the experimental farm at Ste. Anne de la Pocatière. Presented 13th February, 1913.—Mr. Lapointe (Kamouraska)....Not printed.

- 72k. Appointment of Mr. McCloskie as postmaster at Waukau, British Columbia.—(Senate)
 Not printed.

80. Return to an Order of the House of the 9th December, 1912, for a copy of all correspondence, complaints, reports and all documents relating to the cancelling of lease No. 18778, consented to by the Honourable Minister of Railways and Canals, to Aurile Lebœuf, on the 12th December, 1910.—Presented 16th January, 1913.—Mr. Papineau.

- 83d. Return to an Order of the House, of the 29th January, 1913, for a copy of the evidence taken at the inquiry held in the month of November, 1912, by Mr. MacDonald 43849-6 81

- 83h. Return to an Order of the House of the 12th February, 1913, for a copy of all letters correspondence, petitions and other documents, on file in the Department of Railways and Canals, or in the office of the Intercolonial Railway at Moneton, relating or in any way appertaining to the new public wharf at Sackville, N.B., and the necessity of establishing in the interest of the traffic of the Intercolonial Railway, and of the shipping and trade facilities of Sackville, and of the commerce of communities adjacent thereto, rail connections between the said wharf and the main line of the said railways at Sackville station; also of all letters and other communications received by the chairman or vice-chairman of the Government Railways Managing Board, or by any official of the said railway, relating in any mauner to the said subject, received by them or any of them during the years 1911, 1912 and 1913. Presented 19th March,
- 83j. Return to an Order of the House of the 19th March, 1913, for a return showing how many kegs of nails were purchased in 1912 for the Intercolonial Railway; the prices paid therefor in each case; whether tenders were invited in the case of each purchase and, if so, who the respective tenderers were and the prices submitted; to whom were the contracts awarded in each case. Presented 28th March, 1913.—Mr. Murphy.

Not printed.

83k. Return to an Order of the House of the 19th March, 1913, for a return showing the amounts received by the Intercolonial Railway for freight and passengers respectively for each of the twelve months of the calendar years 1910, 1911 and 1912, at the following stations:—Montreal, Halifax, St. John, Sydney, Truro, Moncton, New Glasgow

and Amherst; also, the total receipts of the said railway for freight and passenger-respectively during each of the said years. Presented 28th March, 1913.—Mr. Rhodes.

Not printed.

- 83p. Return to an Order of the House of the 24th February, 1913, for a copy of all complaints, requirements, requisitions, petitions, and correspondence of all kinds made by the Sydney, N.S., Board of Trade, or by the citizens of the city of Sydney, or any of them, having reference to better and increased facilities on the Intercolonial Railway on the Sydney division. Presented 21st April, 1913.—Mr. Carroll.

- 83t. Certified copy of a report of the Privy Council of the 5th May, 1913, covering the appointment of Frederick Passmore Gutelius, as general manager of Government Railways. Presented by Hon. Mr. Cochrane, 7th May, 1913..........Not printed.
- 83u. Return to an Order of the House of the 31st March, 1913, for a copy of all letters, memorials, petitions, correspondence, reports and other documents in the Department of the Postmaster General, or on file therein, relating or in any wise appertaining to the inauguration or establishing of railway mail facilities between Moncton, N.B., westward over the Intercolonial Railway towards St. John, in the morning, so as to furnish, among other things, opportunities for the transmission of newspapers and other mail matter, along said railway, to make morning connection with the railway mail facilities afforded by the railway from Salisbury, Westmorland County, N.B., running into Albert County, N.B.; and also relating to the establishment of railway mail facilities on each week day evening between Moneton eastward over the said railway by train known as number \$4, running between Moncton, N.B., and Springhill Junction, Nova Scotia, thus affording the direct mail connection for newspapers and other mail matter each evening from Moncton to Shediac, Memramcook, Dorchester, Sackville, Amherst, and intermediate points east of Moncton; together with a statement showing what, if any, such railway mail facilities, either by locked bag or otherwise, were established or furnished over either of the said routes, and stating the respective dates when the same were so established or furnished generally, or in relation to any one of the newspapers published in Moncton, either in the morning or in the
- 83w. Return to an Order of the House of the 28th April, 1913, for a return showing all amounts collected by the Intercolonial Railway for freight on hay shipped from Amherst and other stations on the Intercolonial, in the County of Cumberland, to Antigonish and other stations in the County of Antigonish, during the months of

- 88. Commission appointed to investigate Indian reserves of British Columbia.—(Senate).

 Not printed.
- **90.** Report of departmental commission relating to official statistics of Canada.—(Senate).

 *Printe d for distribution only.
- 92. Return to an Order of the House of the 9th December, 1912, for a copy of all papers, documents, petitions, memoranda, correspondence, &c., with the Government of British Columbia or any member thereof, with the fishery officers of the Marine and Fisheries Department resident in said province, with salmon canneries in said province, and with any company, person or persons, relating to the prohibition of the export of sockeye salmon from the said province of British Columbia since 15th October, 1911. Presented 20th January, 1913.—Mr. Maclean (Halifax)....Not printed.
- 94. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all papers, documents, letters, &c., between the Government of Canada and the Commonwealth of Australia for the past twelve months relative to the matter of preferential tariff arrangements between the said two countries. Presented 21st January, 1913.—Mr. Maclean (Halifax)..Printed for sessional papers only.
- 95. Report of Mr. Olivar Asselin on an investigation of Belgian and French emigration to Canada. Presented by Hon. Mr. Roche, 21st January, 1913.

- 95c. Return to an Address to His Royal Highness the Governor General of the 29th January, 1913, for a copy of the report of the commission appointed to investigate complaints against the United Shoe Machinery Company, together with the order in council appointing the commission, the complaints upon which the order was issued and all action, if any, taken by the government on report of commission, by order in council or otherwise. Presented 11th February, 1913.—Sir Wilfrid Laurier.

Not printed

- 95d. Return to an Order of the House of the 20th January, 1913, for a copy of all evidence, letters, telegrams and other documents in connection with the investigation into the stranding of the D. G. steamer Earl Grey at Toney River, County of Pictou, in the spring of 1912; of the reports of the commissioner investigating the same, and of all correspondence, telegrams and documents in connection therewith, and of any departmental action in connection therewith. Presented 18th March, 1913.—Mr. Macdonald. Not printed

- 98. Return to an Order of the House of the 22nd January, 1913, for a copy of all correspondence, letters and telegrams between the Minister of Marine and Fisheries, or any officer of his department, and J. A. Gillies, K.C., Sydney, relating to the purchase from John B. Nicholson, of a site for a salmon hatchery at Snidlope Lake, Richmond County, N.S., and also of all accounts, charges and vouchers received from the said J. A. Gillies, for services in connection therewith and the payments made to the said J. A. Gillies in respect of the same. Presented 7th February, 1913.—Mr. Kyte.

- 101. Return to an Address to His Royal Highness the Governor General of the 22nd January, 1912, for a copy of all correspondence between the government of Canada and the government of the Province of Ontario, with regard to the extension of the boundaries of the said province. Presented 28th January, 1913.—Sir Wilfrid Laurier.

 Not printed.
- 102. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, reports, and documents, bearing on the claim of C. R. Scoles, of New Carlisle, Quebec, to a balance of subsidy voted to the Atlantic and Lake Superior railway, since October, 1911, to date. Presented 24th January, 1913.—Mr. Marcil.

Not printed.

- 105. Return to an Order of the House of the 4th December, 1912, for a copy of all the different freight tariffs in force on the line of railway from Matapedia, Quebec, to New Carlisle, Quebec, and from New Carlisle, to Gascons, Quebec, and vice versa, and of any requests that have been received in regard to the change in the same; and also a copy of any requests, petitions, letters, or other documents complaining of the said tariffs. Presented 27th January, 1913.—Mr. Marcil (Bonaventure).

Not printed.

106. Return to an Order of the House of the 5th December, 1912, for a copy of the original instructions, including maps, specifications, profiles, &c., furnished the engineers on the eastern division of the Transcontinental railway between Winnipeg and Quebec by the chief engineer of the Transcontinental Commission, and approved by the Grand Trunk Pacific Railway Company. Also of all instructions, including specifications and profiles, issued by the chief engineer of the Transcontinental Commission or by the chairman, since 31st October, 1911, which in any way vary, amend, or depart from the original instructions above mentioned. Also, of all correspondence between the Minister of Railways or any official of his department and the chairman of the Transcontinental Commission, or the chief engineer, concerning the departure from the original instructions, either as to the grades, curves and bridges or other permanent structures. Also a copy of all correspondence between the Minister of Railways or any member of the government and any official of the Grand Trunk Pacific Railway Company referring to change of original instructions as regards grades, curves or permanent structures on the said line between Winnipeg and Quebec; and also of all correspondence between the chairman of the Transcontinental Commission or the chief engineer and any official of the Grand Trunk Pacific Railway Company, or any member of its engineering staff, concerning the proposed change of grades, curves, or other permanent structures on the line of the Transcontinental between Winnipeg and the City of Quebec. Presented 30th January, 1913-Mr. Graham.

Not printed.

- 108a. Return to an Order of the House of the 27th January, 1913, for a copy of all correspondence between the Department of Railways and Canals and C. D. Sargent, C.E., and between C. D. Sargent, C.E., and H. G. Stanton, Superintending Engineer of the St. Peters Canal, or between W. H. Weller, contractor for the St. Peters canal improvements, and either or all of said parties relative to work done by the contractor outside of his contract, and the specifications thereof, and also a copy of all correspondence, letters and telegrams between the Department of Railways and Canals or C. D. Sargent, C.E., and any other person, in regard to the same; and of all accounts and vouchers rendered by the contractor to the government of such work, and the payment made by the government to the contractor, specifying whether the same is paid for in full or otherwise. Presented 21st April, 1913.—Mr. Kytc.

Not printed

108b. Return to an Order of the House of the 19th March, 1913, for a copy of the accounts of personal expenses paid to Mr. St. Amour, Superintendent of the Soulanges Canal,

- 115. Return to an Order of the House of the 27th March, 1912, for a copy of all papers, letters and telegrams relating to the applications for, or the granting of, a lease of False Cove Flats, Vancouver, B.C. Presented 11th February, 1913.—Mr. Macdonald.

 Not printed.
- 116. Return to an Order of the House of the 27th January, 1913, for a copy of all correspondence and other papers in connection with a proposed guarantee of bonds to the Quebec and Saguenay railway. Presented 11th February, 1913.—Mr. Lemicux....Not printed.

116b. Return to an Address to Ilis Royal Highness the Governor General of the 11th December, 1912, for a copy of all orders in council in connection with the construction of a line of railway from St. John to Grand Falls in the Province of New Brunswick, or any portion thereof and also of all plans and profiles filed with the Department of Railways and Canals by the St. John and Quebec Railway Company, and of all correspondence between the Department of Railways and Canals or any official thereof and with the said company or the Government of the Province of New Brunswick, or any official thereof, with reference to the curves, grades or general specifications of the said railway or any portion thereof. Presented 20th May, 1913.—Mr. Carvell.

- 118. Return to an Address to His Royal Highness the Governor General of the 22nd January, 1913, for a copy of all orders in council and of all correspondence relating to the extension of facilities for obtaining information useful to Canadian Trade and Commerce in connection with the British Consular Service. Presented 11th February, 1913.—Mr. Ames.
 Not printed.
- 119a. Supplementary return to an Order of the House of the 24th January, 1912, for a return showing all the employees of the different departments at Ottawa, and also in the nine provinces and territories of Canada, and other places outside of Canada, in the inside and outside service, who have left their employment since the 1st October, 1911, up to the 10th January, 1912, inclusively, with their names, Christian names, age, nationality, employment and salaries respectively; the date of their appointment; the date of their leaving; their salaries at the time of their appointment and at leaving; the reasons of their leaving; and if replaced or not; the names, Christian name, age, nationality, employment and salary of those who have replaced them;

and in the case of dismissals, a list of the persons who asked for their dismissals; in the case of these replacing them, a list of the persons who recommended their successors. Presented 17th March, 1913.—Mr. Wilson (Laval)............Not printed.

120. Return to an Address to His Royal Highness the Governor General of the 5th February, 1912, for a copy of all tenders, contracts, reports and other memoranda of the engineers of the Department of Public Works, orders in council, correspondence and all other documents relating to the construction of a dam for storage purposes at the foot of Lake Timiskaming. Presented 12th February, 1913.—Mr. Pugsley.

- 125. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all papers, letters, telegrams and correspondence between the Government of Canada or any member thereof, since 1st November, 1911, to the pre-

- 125b. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all papers, documents, petitions, orders in council, letters and telegrams in any department of the government of Canada, or that passed between the Department of Customs and the Department of Justice or any solicitor, counsel, association, company or individual, during the past twelve months, respecting the imposition of tariff duties upon imported lumber dressed on one side and sized, or respecting the interpretation of tariff item No. 504, together with a printed copy of any stated case, appeal, factum or argument used before the Exchequer Court of Canada or the Supreme Court of Canada, in the matter of the judicial interpretation of tariff item No. 504. Presented 4th June, 1913.—Mr. Maclean (Halifax)

Not printed.

- 127. Return to an Order of the House of the 27th January, 1913, for a return showing when the militia or regular forces was first called out in Canada since Confederation in aid of the civil authorities, how often, when and where has the same been called out since, the amount of money paid by each municipal corporation for such service in each case, what corps called out on each occasion, whether to quell strikes in each instance or for what purpose. Presented 18th February, 1913.—Mr. Macdonald.

- 129. Return to an Order of the House of the 10th February, 1913, for a copy of all documents, correspondence, memorandums, reports, requests for inquiries, of the appointment of commissioners and other documents, relating to the study of the causes for the depopulation of country places and the high cost of living in the eastern provinces of the Dominion. Presented 18th February, 1913.—Mr. Paquet...........Not printed.
- 130. Return to an Order of the House of the 9th December, 1912, for a copy of all papers, documents, memoranda and correspondence relating to the application of the Banque Internationale to the Treasury Board for a certificate for the commencement of business. Presented 18th February, 1913.—Mr. Maclean (Halifax)..........Not printed.

- 132. Return to an Order of the House of the 29th January, 1913, for a copy of all correspondence and papers concerning the increase of salary of Mr. Sevigny, employed at the immigration office at Montreal. Presented 18th February, 1913.—Mr. Carvell.

- 134. Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence and other papers, in the Department of Public Works, concerning the awarding of a contract for a Welsh coal supply to the various Dominion public buildings in Montreal. Presented 19th February, 1913.—Mr. Lemieux...Not printed.

- 137. Return to an Order of the House of the 4th December, 1912, for a return showing the amount of money expended in improving the channel of the Ottawa river between the city of Hull and the village of Masson. Presented 19th February, 1913.—Mr. Devlin.

 Not printed.

- 141. Claims of present fish warden, Baker Lake, County of Madawaska, N.B.—(Senate).

 Not printed.
- 141b. Return to an Order of the House of the 29th January, 1913, for a copy of all papers, letters, telegrams and documents or other communications, had with the Department of Marine and Fisheries or any official thereof, in regard to the prosecutions against the following parties:—Samuel Stewart, Melvin Hart, Andrew McNeil, Thomas McNeil, Hugh Malcolm, Tom Moffatt, James Waddin, Samuel Wright and Dougald Higgins, of Westville, County of Pictou, for infractions of the Fisheries Act, and of any applications or letters relative to relief from the fines imposed or the return of the same; and also of all papers, letters, and other documents relating to a charge against Rod. Martin, of Westville aforesaid, a fishery guardian, for illegal fishing and other offences. Presented 21st May, 1913.—Mr. Macdonald.............Not printed.
- 141a Claims of Messrs. Boulanger and Son, Montmagny, Quebec .- (Senate) Not printed.
- 142. Copy of Report of Minister of Justice in re Florence Mining Company.—(Senate).

 Not printed.

- 145. Return to an Address to His Royal Highness the Governor General of the 9th December 1912, for a copy of all papers, telegrams, letters and orders in council respecting the transfer of the property known as the Police Point Reserve to the corporation of the City of Medicine Hat, Alberta. Presented 20th February, 1913.—Mr. Buchanan.

Not printed.

- 150. Return to an Order of the House of the 24th February, 1913, for a return showing the stenographers and secretaries of the House of Commons, and the names of the members for whom each of them work. Presented 26th February, 1913.—Mr. Boulay.
- 150a Return to an Order of the House of the 31st March, ultimo, for a return giving the names and home addresses of the persons employed in the House of Commons as stenographers to members. Presented 1st April, 1913.—Mr. Martin (Regina).

A. 1913

CONTENTS OF VOLUME 27-Continued.

- 153a. Report of the Honourable Sir William Ralph Meredith, Kt., Commissioner appointed to make investigation into all matters connected with the Farmers Bank of Canada. Presented by Hon. Mr. White, 26th February, 1913.

Printed for distribution and sessional papers.

CONTENTS OF VOLUME 28.

(This volume is bound in three parts.)

153b. Report of Royal Commission authorized by orders in council dated 19th day of July, 1912, and the 5th day of August, 1912, to inquire into alleged complaints as to methods of weighing butter and cheese in Montreal, and also as to the methods of payment. Presented by Hon. Mr. Burrell, 30th May, 1913.

Printed for distribution and sessional papers.

154. Return to an Order of the House of the 27th January, 1912, for a return showing the amount of the subsidy paid to each of the four original provinces of the Dominion at Confederation, and the population on which such payment was based; the subsidy payable to each of the remaining five provinces on entering the union, and the population on which such payment was based; the sum added to the subsidy of any province as better terms, and the date which such addition was made respectively; the details of each readjustment of subsidies since 1867, and the yearly subsidy at present payable to each province, with the population on which such payment is based, and the original debt allowance, if any, respectively, placed to the credit of each province on entering the union. Presented 27th February, 1913.—Mr. Sinclair.

Printed for sessional papers only.

- 156. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, tenders, contracts, papers and other documents in the possession of the Department of Marine and Fisheries relating to the making and cancellation of a contract or agreement between the said department and one Charles G. Giffin, of Isaac Harbour,

157. Return to an Order of the House of the 29th January, 1913, for a copy of all papers and correspondence concerning the claim of Charles Mennier, ex-Collector of Customs at Marieville, Quebec, for rent. Presented 28th February, 1913.—Mr. Lemieux.

Not printed.

- 159c. Return to an Order of the House of the 12th May, 1913, for a copy of the last surrender and of all papers, correspondence and other documents in connection with the surrender of part of the White Bear Indian Reserve; together with a copy of all letters and telegrams referring to this surrender by officials of the Department or others, and of the authority on which this surrender was taken, the number of acres surrendered, and how disposed of. Presented 23rd May, 1913.—Mr. Bradbury.

- 160. Immigrants—number of, who settled in Canada, in 1911-12, and from whence.—(Senate).

 Not printed.

- 162. Return to an Address to His Royal Highness the Governor General of the 25th March, 1912, for a copy of all letters, requests, petitions, orders in council and other documents in the possession of the Department of Marine and Fisheries relating to the change in the fishery regulations by which steam trawlers were prohibited from participating in the fishing bounty. Presented 3rd March, 1913.—Mr. Sinclair.

Not printed.

- 163. Return to an Order of the House of the 19th February, 19'3, for a copy of all correspondence, papers, accounts, vouchers, concerning the purchase and subsequent repairs of a private car by the Department of Militia and Defence, from the Canadian Northern Railway Company. Presented 3rd March, 1913.—Mr. Lemieux.

- 167. Return to an Address to His Royal Highness the Governor General of the 3rd February, 1913, for a copy of all telegrams, letters and other documents passing between the Government of Canada, or any member thereof, and the Government of the Province of Saskatchewan, or any member thereof, with respect to chapter 17 of the statutes of Saskatchewan, 1912, being an Act to prevent the employment of female labour in certain capacities. Presented 17th March, 1913.—Mr. Martin (Regina).....Not printed.

- 174a. Return to an Order of the House of the 13th February, 1913, for the name of the discipline officer in charge of each of the following departments in Portsmouth penitentiary, the date when each was first appointed on the penitentiary staff, the date to his present position, and the religious belief of each: Quarry, farm, warden's residence and grounds, blacksmith shop, bath room and laundry, stone shed, tailor and shoe shop, changing room, stone pile, sewage plant, asylum ward, cell wings, library and Roman Catholic and Protestant chapels, hospital, shop dome, carpenter, tin and paint shop, and prison of isolation. Presented 26th March, 1913.—Mr. Edwards.

Not printed.

- 175. Return to an Order of the House of the 17th February, 1913, for a copy of all statements of account for salary or remaneration to the Commissioner, and his expenses. for witness fees and all other expenses in connection with the investigations by Commissioner Duchemin, of the following persons in Antigonish County namely: Patrick M. Decoste, deckhand SS. Scotia, Harbour au Boucher; William R. Fougère, sectionman, Harbour au Bouche; Allen Kinney, sectionman, Linwood; Hubert Myatte, sectionman, Tracadie; John McDonell, sectionman, Afton Station; John W. Malanson. sectionman, Afton; James Armstrong, sectionman, Heatherton; Charles Landry, sectionman, Pomket; William S. Landry, section foreman, Pomket; Colin McDonald. sectionman, James River; Archibald Chisholm, station agent, Heatherton; Joseph Bepoit, station agent, Pomket; Alex. R. McAdam, fishery officer, Malignant Cove; Alex. McDonald, sub-collector, Doctors Brook; Charles In Gass, sub-collector, Bayfield: Jeffrey M. Crispo, sub-collector, Harbour au Bouche; Hugh R. McAdam, postmaster, Arisaig; Thomas J. Sears, postmaster, Lochaber, Charles L. Gass, postmaster, Bayfield; and Joseph P. Benoit, postmaster, Pomquet; also the expenses in detail, of and incidental to the investigation by said Commissioner Duchemin of the charges made against John J. McDonald, postmaster. McArra's Brook; Archibald Stewart, section foreman, Harbour au Bouche: Ronald McFarlane, section foreman, Williams Point; Henry Williams, sectionman, Marshy Hope; and John W. McInnes, bridge foreman Intercolonial Railway, Antigonish. Presented 26th March, 1913.-Mr.
- 175a. Return to an Order of the House of the 28th April, 1913, for a return showing the date of the appointment of H. P. Duchemin, Investigating Commissioner for Eastern Nova Scotia; the number of days he has been employed by the government since the appointment; the gross amount paid to Mr. Duchemin as an allowance for his services, excluding travelling expenses or other outlay; the amount which has been paid to Mr. Duchemin to date for travelling expenses, living expenses, witness fees, and other sundry expenses, respectively. Presented 21st May, 1913.—Mr. Sinclair.

- 177. Return to an Order of the House of the 6th February, 1913, for a return showing what "properties within the area north of Wellington street and west of Bank street, in the City of Ottawa, have been purchased or acquired by the Government; from whom the said purchases were made, and the price paid, or agreed to be paid, in each case; the

- 181. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, letters and telegrams addressed by the Conservative candidate in the County of Gloucester at the election of 21st September, 1911, to the Minister of Public Works from the day he took his oath of office, on 10th October, 1911, up to the 31st December, of the same year, on the subject of public works then under construction in the said county. Presented 28th March, 1913.—Mr. Turgeon.....Not printed.

- 183. Report on wholesale prices in Canada, 1912, by R. H. Coats, B.A., F.S.S., editor of the Labour Gazette. Presented by Hon. Mr. Crothers, 28th March, 1913....Not printed.
- 184. Area of territories added to Ontario and Quebec, by Statutes of 1912.—(Senate).

 Not printed.

- 187a. Return to an Order of the House of the 3rd March, 1913, for a copy of all correspondence, telegrams and other papers in connection with the southwest ½ of 4-9-14 west of 2nd meridian. Presented 10th April, 1913.—Mr. Bradbury............Not printed.
- 187c. Return to an Order of the House of the 3rd March, 1913,—1. For a copy of all correspondence and other papers in connection with the disposal of the following lands and the claim of James W. Brown in connection with these lands:—

Part of S.E. 4 section 21-20-21-W. 2nd meridian, area 500ths acre.

Part of N.E. 4 section 21-20-21-W. 2nd meridian, area 115/100ths acre

Part of S.E. 4 section 20-20-21-W. 2nd meridian, area 80 acres.

Part of S.W. 4 section 28-20-21-W. 2nd meridian, area 724400ths acres.

Whole of S.E. 4 section 28-20-21-W. 2nd meridian, area 160 acres.

Whole of N.E. 4 section 32-20-21-W. 2nd meridian, area 160 acres.

Part of S.E. 4 section 32-20-21-W. 2nd meridian, area'80 acres.

Whole of N.W. 4 section 5-21-21-W. 2nd meridian, area 160 acres.

Whole of S.E. 4 section 5-21-21-W. 2nd meridian, area 169 acres.

Part of N.E. 4 section 5-21-21-W. 2nd meridian, area 12385/100ths acres.

Whole of S.W. 4 section 5-21-21-W. 2nd meridian, area 100 acres.

- 187d. Return to an Order of the House of the 9th April, 1913, for a copy of all letters, papers, telegrams and other documents in connection with the sale of the N.W. quarter-section 29 10-18-W. Presented 13th May, 1913.—Mr. Turriff......Not printed.
- 187e. Return to an Order of the House of the 28th April, 1913, for a copy of all letters, memoranda and other documents relating to the northeast quarter of 14-75-15-5, during the years 1911, 1912, and 1913 to date. Presented 13th May, 1913.—Mr. Oliver.

 Not printed.

- 188. Return to an Order of the House of the 10th March, 1913, for a copy of all correspondence or communication of any kind between the Department of Insurance at Ottawa and the Department of Insurance at Toronto since June, 1907, touching the transfer of the Canadian Guardian Life Insurance Company from the jurisdiction of the Insurance Department at Ottawa to that of the jurisdiction of the Insurance Department at Toronto; of all correspondence, if any, between the Insurance Department at Ottawa and the Saturday Night, newspaper of Toronto, touching the affairs of the Canadian Guardian Life Insurance Company or the International Insurance Company, Limited; and of all correspondence and other communications between the Department of Insurance at Ottawa and the Government of the province of Alberta in reference to the affairs of the Canadian Guardian Life Insurance Company or the International Insurance Company, Limited. Presented 31st March, 1913.—Mr. German.

Not printed.

189. Copy of an Order in Council, &c., respecting a contribution of \$30,000 to assist in alleviating the distress of the sufferers by the disastrous cyclone which swept over the City of Regina and its vicinity. Presented by Hon. Mr. White, 31st March, 1913.

Not printed

190. Copy of correspondence respecting the Treaty of Commerce and Navigation between the United Kingdom and Japan. Presented by Hon. Mr. Borden, 1st April, 1913.

Printed for sessional papers only.

- 190a. From Imperial Consulate General of Japan for the Dominion of Canada. The undersigned, His Imperial Majesty's Consul General at Ottawa, duly authorized by His Government, has the honour to declare that the Imperial Japanese Government are fully prepared to maintain with equal effectiveness the limitation and control which they have since 1908 exercised in the regulation of emigration from Japan to Canada. 11th April, 1913. Presented by Hon. Mr. Borden, 11th April, 1913.......Not printed.
- 191. Copy of the order in council in connection with the appointment of a Commission to inquire into the claims of the province of British Columbia for exceptional treatment. Presented by Hon. Mr. Borden, 1st April, 1913.......Printed for sessional papers only.

§91b. Copies of orders in council, &c., relating to the appointment of commissioners to adjust all matters relating to Indian lands and Indian affairs generally in the province of British Columbia. Presented by Hon. Mr. Borden, 17th April, 1913.

Not printed.

- 191d. Report of Royal Commission on Industrial Training and Technical Education, Parts I, II, III. and IV. Presented by Hon. Mr. Crothers, 4th June, 1913.

Printed for distribution and sessional papers.

- 195. Return to an Order of the House of the 10th March, 1913, for a statement showing the total volume of trade, in import and export, respectively, between Canada and Newfoundland for each year during the period from the 1st day of January, 1896, to the 1st day of January, 1913, and of what the said trade consisted of each year.
 - 2. The volume of trade between Newfoundland and the West Indian Islands, included in the West Indian trade agreement with Canada, dated the 9th day of April, 1912, during the years 1909, 1910, 1911 and 1912, in import and export, and of what the said import and export consisted of each year. Presented 10th April, 1913.—Mr. McKenzie. Not printed.
- 195a. Supplementary return to an Order of the House of the 10th March, 1913, for a statement showing the total volume of trade, in import and export, respectively, between Canada and Newfoundland for each year during the period from the 1st day of January, 1896, to the 1st day of January, 1913, and of what the said trade consisted of each year.

- 197. Return to an Order of the House of the 19th March, 1913, for a copy of all tenders asking for the construction of a drill hall at Fernie, B.C., of all correspondence concerning the awarding of the contract, and of all correspondence and documents regarding said tender and contract. Presented 14th April, 1913.—Sir Wilfrid Laurier.
 Not printed.

- 202. Return to an Order of the House of the 31st March, 1913, for a copy of all correspondence claims and reports with reference to compensation claimed by owners of horses attached to the 30th Field Battery at Camp Petawawa in the summer of 1912, by rea-

203. Return to an Order of the House of the 11th December, 1912, for a copy of all papers, documents, pay-rolls, accounts, receipts, and correspondence in connection with all expenditures of money made in 1912 upon the Petite Rivière breakwater, Lunenburg County, Nova Scotia. Presented 29th April, 1913.—Mr. Maclean (Halifax).

Not printed.

203a. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all advertisements, tenders, contracts, orders in council, letters, correspondence, &c., relating to the construction of a wharf or breakwater at Seaforth, Halifax County, N.S. Presented 29th April, 1913.—Mr. Maclean (Halifax).

- 203g. Return to an Order of the House of the 7th April, 1913, for a copy of all documents, correspondence, &c., relating to the purchase by the Department of Public Works of a certain quantity of timber for the construction of a wharf at St. Germain de Kamouraska, the said purchase having been made, as alleged, from Murray Castonguay during the year 1912. Presented 26th May, 1913.—Mr. Lapointe (Kamouraska).
 Not printed.

- 204. Return to an Order of the House of the 4th March, 1912.—1. For a copy of all reports of engineers from 1874 to 1960, relating to the most suitable site in the harbour of Quebec for the construction of a dry dock.
 - 2. Of all correspondence exchanged on the subject of a choice of a site for the dry dock now existing at St. Joseph de Lévis, at the time of its construction.
 - 3. Of engineers reports, plans, maps and bearings relating to the construction of a new dry dock in the port of Quebec since 1900.
 - 4. Of all correspondence exchanged between the different companies and the government relating to the construction of a new dry dock in the port of Quebec, since 1909.
- 204a. Dry dock of Lévis. Report of Mr. Charles Smith against Sampson, et al.—(Senate).

 Not printed.
- 204b. Return to an Address*to His Royal Highness the Governor General of the 19th March, 1913, for a copy of all orders in council, plans and estimates, correspondence, papers and inquiries respecting the construction of a dry dock at Quebec or Lévis or in the port or harbour of Quebec. Presented 6th June, 1913.—Mr. Lachance....Not printed.
- 206. Return to an Order of the House of the 13th February, 1913, for a return showing the name of the company who has the contract for the electric lighting of the government buildings and grounds in Ottawa, date of contract and period, on what notice can contract be cancelled, price paid per kilowatt hour for electric lighting, names of

buildings lighted, cost of lighting each per year, rate for electric lighting if a combined power and light rate, price for current for power purposes, if lamps are not free, price paid for the carbon and tungsten lamps renewed, are lamps marked so as to be identified as belonging to the government buildings, number of electric lamp renewals paid for during the last fiscal year, where required, number of carbon and tungsten lamps respectively in use in the several buildings and the candle power or wattage of the same. Presented 2nd May, 1913.—Mr. Wilson (Wentworth)

Not printed.

207. Return to an Order of the House of the 17th February, 1913, for a copy of all correspondence, letters, telegrams, petitions, memoranda, reports, tenders, deposits, recommendations and all other documents of any nature whatsoever bearing on or having relation to the erection of a public building in the city of Three Rivers, P.Q., since the 11th day of October, 1911, to date. Presented 2nd May, 1913.—Mr. Burcau.

Not printed.

207a. Return to an Order of the House of the 26th May, 1913, for a copy of all papers, letters, and documents relating to the construction of a public building in the town of Laurentides, County of L'Assomption. Presented 4th June, 1913.—Mr. Seguin.

Not printed.

207b. Return to an Order of the House of the 2nd April, 1913, for a copy of all correspondence, letters, telegrams, contracts, tenders and reports of government inspector, in relation to the work and repairs on the public building at North Sydney during the year 1912, and particularly the inspector's report on the damages caused by fire during the construction of said works and repairs; and also a copy of the tenders of Henry Lovell, for the above work. Presented 6th June, 1913.—Mr. McKenzie.

- 211. Report made by the Central Railway of Canada to the Railway Department.—(Senate).

 Not printed.

- 213a. Return to an Order of the House of the 2nd April, 1913, for a return showing by quarter-section, or fraction of quarter-section, all school lands sold in Manitoba, Saskatchewan and Alberta during the calendar year 1912; the price per acre at which each separate parcel was sold; the name and address of each purchaser; a list of all school lands sold at above sales which have since been cancelled; the price at which each parcel of said cancelled lands were sold, with the names and addresses of purchasers of each parcel of said lands sold and subsequently cancelled. Presented 23rd May, 1913.—Mr. Turriff.
 Not printed.
- 214. Return to an Order of the House of the 9th April, 1913, for a copy of all petitions, affidavits, specifications, plans, drawings, claims, certificates, papers and patent rights in the Department of Agriculture or the Patents Branch thereof, with respect to Patent Number 142823. Presented 7th May, 1913.—Mr. Carvell...........Not printed.
- 216. Return to an Order of the House of the 28th April, 1913, for a copy of all telegrams, correspondence, returns, &c., between the Department of Agriculture, and any other person or persons, requesting recently that the Veterinary Director General of Canada visit Nova Scotia. Presented 9th May, 1913.—Mr. Maclean (Halifax).

A. 1913

CONTENTS OF VOLUME 28.—Continued.

- 218a. Return to an Order of the House of the 29th January, 1913, for a copy of all diaries relating to and showing the work performed during the months of June and July, 1912, by Homestead Inspectors Brandt, Balfour, Ouelette and Sipes, in the Regina land district. Presented 16th May, 1913.—Mr. Martin (Regina).......Not printed.
- 218b. Return to an Order of the House of the 29th January, 1913, for a return showing the expenses of Homestead Inspectors Brandt, Balfour, Quelette and Sipes during the months of June and July, 1912. Presented 16th May, 1913.—Mr. Martin (Regina).
- 218d. Return to an Order of the House of the 29th January, 1913, for a copy of all diaries and other documents relating to and showing the work performed during the months of June and July, 1912, by Homestead Inspectors Shields and McLaren, in the Swift Current lands district. Presented 23rd May, 1913.—Mr. Knowles.......Not printed.
- 218c. Return to an Order of the House of the 29th January, 1913, for a return showing the expenses of Homestead Inspectors Shields, McLaren, Erratt and Rathwell, during the months of June and July of 1912. Presented 26th May, 1913.—Mr. Knowles.

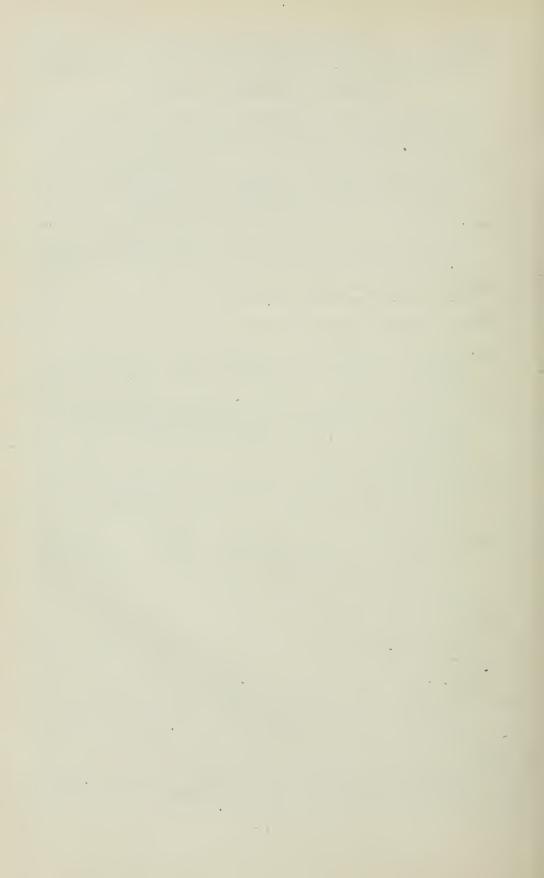
- 222a. Return to an Order of the House of the 2nd April, 1913, for a copy of all correspondence, petitions, letters, telegrams, and other documents in the Department of Trade and Commerce, or any department of the Government, relating to the SS. service,

- between Mulgrave, County of Guysborough and Cheticamp, Inverness County, during the years 1910-11, 1911-12, and 1912-13, and the service to be continued during the year 1913-14. Presented 27th May, 1913.—Mr. Chisholm (Inverness)...........Not printed.
- 223. Return to an Order of the Senate calling upon the Clerk of the House to furnish a statement showing the number of Bills passed by the House of Commons since Confederation, which have been:—1. Amended by the Senate. 2. Rejected by the Senate.

 3. Amended by the Senate and accepted by the Commons.—(Senate).....Not printed.

- 227. Return to an Order of the House of the 19th May, 1913, for a return showing the per capita taxation for the year ending 31st March, 1913, and for each of the twelve preceding years. Presented 3rd June, 1913—Mr. Hughes (Kings, P.E.I.)....Not printed.

- 230. Return to an Address to His Royal Highness the Governor General of the 10th March, 1913, for a copy of all correspondence, memoranda, orders in council, departmental orders and reports from fishery overseers or other officers, during the past two years, relating to weir licenses in the waters of the Counties of Charlotte and St. John, Province of New Brunswick. Presented 6th June, 1913.—Mr. Pugsley.......Not printed.
- 232. Return to an Address to His Royal Highness the Governor General of the 3rd February, 1913, for a copy of all papers in connection with the withdrawal from settlement of a strip of land one mile in width along the line of the Hudson Bay Railway, and of the order in council, and also of all plans and correspondence in connection with the same, prior and subsequent thereto. Presented 6th June, 1913.—Mr. Graham. Not printed.
- 233. A return to an Order of the Senate dated 7th March, 1913, for a copy of all papers, letters, petitions, contracts and other papers relating in any way to the purchase of land at Le Pas for terminus of Hudson Bay road.—(Senate)............Not printed.



ANNUAL REPORT

OF THE

DEPARTMENT OF THE INTERIOR

FOR THE

Fiscal Year ending March 31, 1912

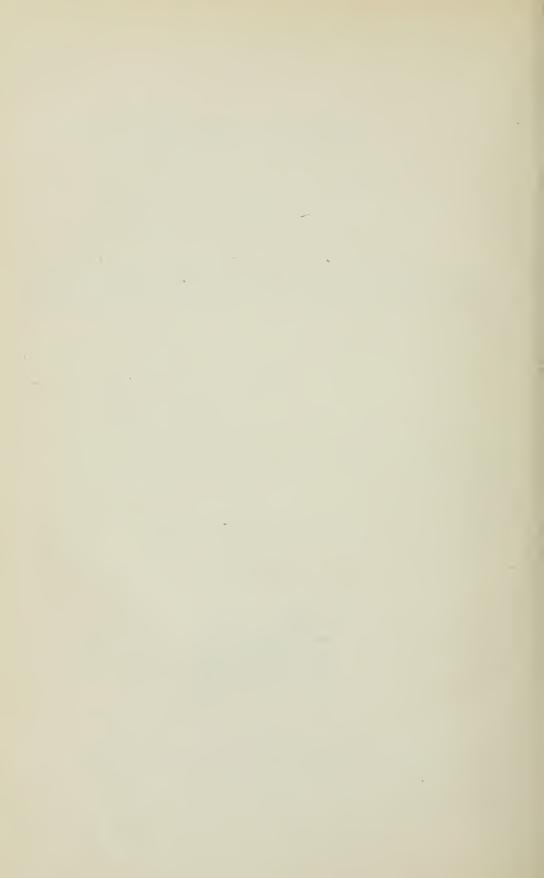
PRINTED BY ORDER OF PARLIAMENT



OTTAWA

PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1912

[No. 25—1913.]



To His Royal Highness, Field Marshal, Prince Arthur William Patrick Albert, Duke of Connaught and Strathearn, K.G., K.T., &c., &c., &c., Governor General and Commander-in-Chief of the Dominion of Canada.

MAY IT PLEASE YOUR ROYAL HIGHNESS:

The undersigned has the honour to lay before Your Royal Highness the report of the transactions of the Department of the Interior for the fiscal year ending March 31, 1912.

Respectfully submitted,

R. ROGERS,
Minister of the Interior.

OTTAWA, October 19, 1912.



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REPORT

OF THE

DEPUTY MINISTER OF THE INTERIOR

1911-12

DEPARTMENT OF THE INTERIOR,

OTTAWA, August 29th, 1912.

To the Honourable ROBERT ROGERS,
Minister of the Interior.

Sir,—I have the honour to submit the thirty-ninth annual report of the Department of the Interior for the twelve months ending 31st March, 1912.

I am glad to be in a position to state that on the whole the work of the Department has been highly satisfactory. As will be observed from the statements submitted, there has been a large increase in the number of arrivals; a large increase also in the total revenue from all sources, but more especially from the disposal and administration of Dominion Lands, and while there was a falling off in the number of free homestead entries granted during the year as corresponding with the previous twelve months, the fact remains that over thirty-nine thousand settlers, representing ninety-one thousand three hundred and seventy-two souls, found it to their advantage to locate upon the arable lands within surveyed areas of the Western Provinces during the past departmental year. While this number is less than what it was in 1911, it is, nevertheless, of such magnitude as to clearly attest the permanency of the unprecedented movement of agriculturists towards the western wheat fields.

I wish to draw more particular attention to the statement immediately following which shows the land situation throughout the Western Provinces and also to the statements furnished by the Superintendent of Immigration as regards the large number of arrivals during the past twelve months from Great Britain, Ireland and the United States. There would appear to be no doubt that on the whole Canada has been receiving a high class of immigrants. This condition is strongly supported by the fact that, although a somewhat smaller number of settlers took up free homesteads this year than did those of last year, railway companies and other corporations that received land subsidies from the Government in order to assist them in the construction of their lines have had the opportunity of disposing of a very considerable area of their holdings to actual settlers, the total proceeds of these sales amounting to over \$18,200,000. This would indicate that the class of immigrants that have found their way to Canada were possessed of considerable means, as no doubt many of them found it to their advantage to acquire improved farms—although the average price therefor per acre was \$13.70—instead of taking up ordinary free homesteads.

I deem it my duty to mention here that, in view of the growth of the work of the Department within recent years, as evidenced by the continued increase in the number of officers and officials employed at headquarters, it is a subject for congratulation that the general business connected with the proper administration of this important branch of the public service should be in such a satisfactory condition, keeping in view the great disadvantage to which we are subjected owing to the lack of proper office accommodation. However, notwithstanding this drawback, it affords me pleasure to be in a position to testify that the work in every branch of the Department is well up to date and that the general administration would appear to be giving entire satisfaction to the public.

DEATHS.

I regret to have to report that there were ten deaths in the Department during the past year, four at headquarters and six in the Outside Service. The following is a list of the persons who died:—

Head Office.

Robert Dunlop, Secretary's Branch, died 23rd April, 1911.

Alex. S. Robertson, Patent Branch, died 10th June, 1911.

L. P. Connelly, Timber and Grazing Branch, died 28th September, 1911.

R. E. Young, Chief Geographer, died 24th October, 1911.

Outside Service.

James Leamy, Crown Timber Agent, New Westminster, B.C., died 8th May, 1911.

- F. W. Annand, Immigration Agent, Halifax, N.S., died 12th May, 1911.
- D. S. McGregor, Sub-Agent Dominion Lands, Rosthern, Sask, died 30th June, 1911.
- R. D. Foley, Dominion Lands Office, Winnipez, Man., died 24th February, 1912.
- J. N. Hiron, Sub-Agent Dominion Lands, Canora, Sask., died 21st February, 1912.

Frank Edenhofer, Dominion Lands Office, Prince Albert, Sask., died 2nd March, 1912.

STATEMENT showing Gross Cash Revenue received from all sources during the Fiscal Year ended March 31, 1912, compared with the receipts for the previous Fiscal Year.

Source of Revenue.	Fiscal Year 1911-12.		Fiscal Year 1910-11.	Increase.	Decrease.	Net Increase.
Dominion Lands School Lands Ordnance Lands Seed Grain Casual Revenue. Registration Fees, Yukon Fines and Forfeitures, N.W.T. Fines under Immigration Act. Chinese Immigration Revenue, Oct. 2, 1911, to March 31, 1912	1,594,533 9 11,566 4 119,634 1 32,824 6 1,066 0 341 0 10,169 4	74 96 16 13 55 05 00 48	3,302,279 57 1,614,733 93 6,009 34 153,351 14 11,336 06 1,378 19	5,557 12 21,488 59 156 20 6,362 06	20,199 97 33,717 01 312 14	\$ cts.
Total	6,714,734 4	17	5,093,140 45	1,675,823 14	54,229 12	1,621,594 02

Note.—Re Chinese Immigration Revenue.

Collected by Trade and Commerce Department, from April 1, 1911, to Oct. 1, 1911...\$2,078,383 00

Department of the Interior, from Oct. 2, 1911, to March 31, 1912...... 971,339 00

STATEMENT of Receipts on account of Dominion Lands Revenue for the Fiscal Year ended March 31, 1912, as compared with the receipts for the previous year. (Net cash revenue.)

	1			1	
Particulars.	1911-12.	1910-11.	Increase.	Decrease.	Net Increase.
	\$ cts.	\$ cts.	8 ets.	\$ cts.	\$ cts
Homestead fees	391,703 12	445,135 00		53,431 88	
Pre-emption fees	102,070 00	156,485 00		54,415 00	
Purchased homestead fees	13,930 00	18,830 50		4,900 50	
Improvements	184,825 92	143,227 13	41,598 79		
Pre-emption sales under Act of 1908	877,235 84	266,878 98	610,356 86		
Purchased homestead sales	423,282 89	376,309 15	46,973 74		
General sales.	666,664 12	550,567 91	116,096 21		
Map sales, office fees, &c Rentals of lands	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	8,730 01 10,216 99	2,509 13 1,455 10		
Survey fees.	30,623 15	15,507 56	15,115 59		
Timber dues	400,668 61	387,054 96	13,613 65		
Grazing lands.	69,519 41	60,702 80	8,816 61		
Coal lands.	440,501 92	490,538 27		50,036 35	
Hay permits	9,923 22	7,808 43	2,114 79		
Mining fees.	75,118 42	72,412 98	2,705 44		
Hydraulic leases	15,602 55	6,127 00	9,475 55		
Dredging leases	4,020 96	4,007 18	13 78		
Export tax on gold	100,606 29	103,168 19		2,561 90	
Free certificates for export of gold	118 50	152 50		34 00	
Stone quarries	9,938 86	5,037 60	4,901 26	10.00	
Irrigation fees	793 72	806 25	0 000 00	12 53	
Rent of water power	11,272 92	2,443 69	8,829 23 90 00		
Fees re Board of Examiners-D.L.S.	1,400 00 815 50	$1,310 00 \\ 1,312 35$	50 00	496 85	
Patent and interchange fees Suspense account	1,660 29	4.876 17		3,215 88	
Interim receipt accounts—Yukon.	211 50	270 50		59 00	
Sand, stone and gravel	11,421 55	11.956 50		534 95	
Petroleum .	49,226 65	70,110 68		20,884 03	
Rocky Mountains Park	52,027 63	65,513 58		13,485 95	
Jasper Park	3,492 85	2,601 19	891 66		
Yoho Park	491 08	743 10		252 02	
Waterton Lakes Park	284 68	106 72	177 96		
Buffalo Park	158 32	80 00	78 32		
Elk Island Park	43 18	10 00	33 18		
Miscellaneous		11,240 70		11,240 70	
Forestry Branch, sale of trees, &c	694 86		694 86		
	2 072 050 74	2 202 270 57	000 511 71	915 501 54	670 000 17
Potunda	3,973,259 74	3,302,279 57	886,541 71	215,561 54	670,980 17
Refunds	197,402 77	193,544 07	3,858 70		
	3,775,856 97	3,108,735 50	882,683 01	215,561 54	667,121 47

STATEMENT Showing Receipts on Account of Dominion Lands from July 1, 1872, to March 31, 1913

Rentals, Purchased Survey Fees, Homestead, Miscella-Inspection, Timber Pucs	g Cancellation and Sundry Fees.	& cts.	109			.00	290 00 1,690	00 011	1,780 00 23,121	10 58,753	77 90,066	53 1,713 45 147,983	57 2,685 00 87,474	7,778 40 65,111	41 12,078 53 94,964	57 20,402 50 90,290	23 20,232 50 84,642	49 93.104.50 106.461	35 22,014 00 105,865	09 11,097 00 81,290	27 6,566 90 74,079	98 8.527 50 68.992	10,042 00 119,313	95 13,549 50 155,360	54 14,957 00 1Zb,545	30 12,722 00 203,533	56 505 00 470 916	46 1,081 00 397,344	1,205 00 266,951	555 976 20 25,084	03,550 31 1,089 51 573,470 52 148,914 00 1,283 50 473,608 94
Dominion Sur Lands M		\$ cts.		:							90	00	000	350 00 340 00 4	00	00	98	38	00	90		38	00	00	38	200	38	96	50	00	9 00 035
Map Sales, Office and	Registration Fees, &c.	\$ cts.			159 00	00 †		_	985 40																						5,449 06 7,727 29
es.	Scrip.	& cts.		:					02 080.10																						11,349 89 92,311 24
Sales	Cash.	& cts.	19,170 20		13,666 90				71 170 17		516,092 21	424,863 36	199,275 32	76,140 41	52,238 36	57,518 16	54,896 85	108 901	93.671 67	53,254 71	37,293 71	40,373 93	80,178 64	116,598 35	103,247 58	40,360 93	188 807 80	196,750 15	154,128 04		494,117 12 656,303 03
Improve-	ments.	ets.		:	:				00 696					1,101 50				6,302 61			3,567 90			4,297 62							39,763 63 71,139 47
Pre	Fees.	& cts.												14,871 00							:	:				:	: : : : : : : : : : : : : : : : : : : :			:	
Homesteads	Fees.	& cts.	6,960 00			4,680 90 2,250 00			41,255 00 456 00					26,110 00				29,164 10					34.780 00	-	_	79,910	950, 420, 66	955 779			215,449 55 301,693 73
V 1	Fiscal resur.	and the same of th	1872–73.	1873-74.	1874-75.	1875-75	1×77-78.	1878-79.	1879-80.	1881_89	1882-83	1883-84.	1884-85.	1885-86.	1887-88	1885-89.	1889-90,	1890–91.	1891 32. 1899-93	1893-94.	1894-95-	1895-96	1897-98	1898-99.	1899-1900	1900-1901	1901-1902	1902-1905	1904–1905.	1905-1906	1906–1907 (nine months)

269,837 52 378,010 70 387,054 96 400,668 61	5,985,344 14
9,946 50 14,028 30 20,142 85 14,745 50	282,275 19
75,596 96 100,257 89 42,111 92 44,167 03	15,286 10 1,564,507 23
1,040 00 1,577 10 1,310 00 1,400 00	15,286 10
7,296 55 9,135 49 8,730 01 11,239 14	112,370 55
20,136 27 9,973 84 1,437 84 3,256 99	3,813,791 63
951,442 28 1,239,037 33 1,193,756 04 1,967,182 85	783,978 24 11,190,077 16
70,928 86 105,009 07 143,227 13 184,825 92	783,978 24
141,550 15 174,250 00 156,485 00 102,070 00	781,096 16
389,039 00 415,232 00 445,135 00 391,703 12	4,532,381 89
1908-1909 1909-1910 1910-1911 1911-1912	Total

STATEMENT showing Receipts on Account of Dominion Lands from July 1, 1872, to March 31, 1912—Concluded.

Net Revenue.		ets.	26,239 45	29,980 80 97 641 15	8.865.94	140,755 02	139,584 40	254,752 35	201,105 23	1.795,047 32	1,042,657 55	992,556 17	439,493 80	394,584 83	568,989 64	563,709 02	588,861 81	454.326 52	453,795 49	374 009 46	245,525 11	198,617 11	219,326 14	191,843 03	1,005,063 08	1,552,031 35	1,450,050 12	1,000,100 21	1,869,366 99	1,645,102 95	1,313,595 45	1,675,896 92	1,455,385 83	_
, Refunds.		\$ cts.																		18,314,97			8,368 79	15,010 54	4,678 55	52,230 53	18 368 85	27 165 55	21,519 84	36,721 75	25,786 90	33,418 36	35,117 48	to ooo,ett
Gross	Trevenue.	& cts.	26,239 45	29,980 80		140,755 02	139,584 40	254., 52 35	206,907	1.805,734.87	1,051,403 60	1,001,776 67	451,564 65	457,973 95	588,532 80	569,986 68	594,088 04	462,536 26	460,990 76	502,151 05	250,069 12	202,983 10	227,694 93	206,853 57	1,009,741 63	1,584,528 32	1,505,745,00	1 439 679 95	1,590,886 83	1,681,824 70	1,339,382 35	1,709,315 28	1,490,503 31	2
Colonization Lands.	Scrip.	•\$ ots.		:			:							:	:::::::::::::::::::::::::::::::::::::::	10,000 00	16,000 00		0c 09f.f	:			:::::::::::::::::::::::::::::::::::::::	: : : : : : : : : : : : : : : : : : : :	:								:	
Colonizati	Cash.	& cts.	:	:			:	:		354.036 17	248,492 01	253,713 40	1,214 22			:			22.0	:			:		:	:	:	:						
Canadian National	Parks.	& cts.	:											:			2,528 73		2,397 30	5,040 45 4 983 93	2,523 92	2,321 87	2,734 82	2,132 11	3,045 65	2,334 10	272		*5,063 69				*15,887 42	
Mining, arries, 1 Gold, &c.	Scrip.	& cts.		:			: '							:	80 00	80 00			160 00	:			:			00 06	900	2		:	:	:	:	
Hay, Coal, Mining. Stone Quarries, Export Tax on Gold,	Cash.	& cts.								40 00	913 91	06 049	815 63	1,284 83	1,570 40	2,273 73	3,946 55	9,242 08	8,628 44	6,266,13	6,243 15	5,229 54	5,813 51	8,518 18	1 190 971 60	1,150,5/1 50	1,000,130,42	737.878 43	607,722 05	495,579 18	364,923 59	296,769 19	213,852 59	10 011,000
Grazing Lands,	Scrip, &c.	\$ cts.																		11,542,39				2,500 00			14,621 90		15,041 33				400 00	
Grazing	Cash.	& cts.					:			2.245 00	22,844 43	11,370 60	17,089 75	29,562 51	14,242 77	5,922 47	5,207 69	1,305 57	3,079 55	6.380 80	5,740 79	5,353 72	7,071 86	4,715 01	4,728 58	0,240 80	4 796 98	7,292 46	13,913 33	19,790 27	36,145 32	51,583 89	43,711 91	01 177'01
Fiscal Year.			1872-73	1873-74 1874-75	1875 76	:	1877–78.	1870-80	1880-81	1881-82.	1882-83.	1883-84.	1884-85	1885-86	1886-87.	1887-88.	1888-89	1889-90	1890-91	1892-93	1893-94	1894–95	1895-96.	1896-97	1897-98	1800 1000	1900-1901	1901–1902	1902-1903	1903-1904	1904–1905	1905-1906.	1906-1907 (nine months)	TOOL-TOOL

SESSIONAL PAPER No. 25

SESSION	NAL I
9,277,678 99 102,463 78 2,175,214 31 3,022,446 13 121,431 15 2,901,014 98 3,306,073 41 198,689 47 3,107,383 94 3,978,036 73 197,631 35 3,780,405 38	39,174,065 54
102,463 78 121,431 15 198,689 47 197,631 35	1,219,567 86
2, 277, 678 09 3, 022, 446 13 3, 306, 073 41 3, 978, 036 73	360 00 333,456 01 857,461 08 30,460 50 40,393,633 40 1,219,567 86 39,174,065 54
31,321,20 43,264,36 60,054,59 56,497,74	30,460 50
	857,461 08
	333,456 01
252,972,17 460,154,29 774,569,27 729,240,42	632,561 17 241,395 92 9,236,830 43
3,257 84 5,081 47 2,356 00 1,520 00	241,395 92
53,312 79 67,434 29 60,702 80 (9,519 41	632,561 17
1908 -1910 -1911 -1912	Total

* Including Scrip.

STATEMENT showing Yearly the Gross Revenue (in cash only) received from all Sources from July 1, 1892, to March 31, 1912.

Total.		2,244,002,21 1,887,041,18 1,811,577,61 2,278,6128 55 2,751,816,22 2,751,816,22 2,751,816,22 2,751,816,22 2,751,816,22 3,228,904,90 4,709,01 5,098,140,45 6,714,734,47 33,244,963,28
Chinese Immigration Revenue.	ec ets.	971,339 00
Casual Revenue.	21	2, 220 2, 230 3, 402 4, 238 11, 758 20, 063 20, 063 20, 063 21, 234 22, 234 42, 234 23, 234 24, 234 26, 234 26, 234 27, 234 28, 234 28, 234 38, 234 38
Registration Fees.		81, 404 18 109, 233 73 123, 082 86 123, 082 86 15, 256 65 1, 378 19 1, 578 19 1, 066 05 547, 680 21
Fines and Forfeitures.		5,220 88 5,911 92 10,018 49 3,304 77 231 00 251 00 251 00 251 00 4,052 22 10,510 48 4,1181 76
Ordnance Lands.	1 2	153,624 80 17,612 79 30,494 34 10,336 90 10,838 17 6,639 90 8,674 95 189,902 34 6,009 34 6,009 34 497,914 29
Seed Grain.	\$ ets. 5,866 21 2,339 16 2,772 56 8,748 05 112,837 13 112,838 69 115,771 84 115,771 64 115,771 64	28,789 97 26,122 30 16,471 34 12,577 29 10,580 86 12,819 86 175,159 86 175,159 86 175,189 13 119,634 13
School Lands.		392,206 93 233,709 63 332,914 48 608,960 779 724,333 73 687,422 74 1,292,269 95 1,614,733 95 1,504,533 96 8,189,201 96 8,189,201 96
Dominion Lands.		7,772,855 10 1,716,557 1,478,106 32 1,478,106 32 1,478,106 32 1,731,485 40 1,798,219 92 2,254,283 98 3,007,398 3,007,398 3,392,279 57 3,392,279 57 3,392,279 57 3,492,393 18
Fiscal Year,	1892-1893 1833-1894 1894-1895 1896-1897 1896-1897 1898-1899 1899-1900 1900-1901	1902-1903 1903-1904 1903-1905 1903-1906 1905-1906 1907-1908 1907-1908 1909-1910 1910-1911 1911-1912

Norr.—Chinese Immigration Revenue reported by the Trade and Commerce Department prior to October 2, 1911.

SESSIONAL PAPER No. 25

STATEMENT of Revenue collected within the Canadian National Parks for the Fiscal Year ended March 31, 1912, as compared with Revenue for previous year.

Particulars.						
Banif Park S cts Cts	Particulars.	Fiscal	Year.	Increase.	Decrease.	
Rent.		1911-12.	1910-11.			Decrease.
Timber Dnes	Banff Park.			\$ cts.		\$ cts.
Cold Water Rates	Timber Dues	1,720 94	1,102 90	618 04		
Transfer Fees.	Cold Water Rates	3,983 52	4,667-69	55 99		
Quarry Permits 352 58 488 44 135 86 Livery Licenses 650 25 683 00 22 75 Pool, Billiard and Bowling Licenses 240 00 190 00 50 00 Boat Licenses 80 00 80 00 80 00 Coal Jands 22,584 11 34,559 07 11,974 96 Grazing Lands 578 04 502 85 14 81 Hot Springs Bathing tickets 4,808 75 4,418 75 660 00 Telephone Rent 1,230 14 1,232 29 2 15 Fines 156 00 566 05 410 05 Peddlers' License 40 00 92 00 52 00 Camping Permits 34 00 18 00 16 00 Guides' Licenses 70 00 75 00 50 Restaurant Licenses 20 00 30 00 10 00 Camping Permits 20 00 30 00 10 00 Cambriag Permits 45 0 62 50 58 00 Miscellarionses 90 0 50 00 40 00 Sales of Town Lots 4	Transfer Fees	108 00	96 00	12 00		
Doat Licenses	Quarry Permits	352 58	488 44 683 00			
Coal Lands 22,584 11 34,559 07 11,974 96 Grazing Lands 578 4 182 85 14 181 Hot Springs Bathing tickets 4,808 75 4,148 75 660 00 Telephone Rent 1230 14 1232 29 0 2 15 Fines 156 00 566 55 410 05 Peddlers' Licenses 40 00 18 00 16 00 Guides' Licenses 20 00 30 00 10 00 Restaurant Licenses 20 00 30 00 11 00 Cemetery Lots 29 00 40 00 11 00 Cemetery Lots 29 00 40 00 11 00 Carrently Lots 45 62 50 58 00 Miscolar Licenses 40 60 60 00	Boat Licenses	131 59	137 50		6 00	
Hot Springs Bathing tickets	Coal Lands	22,584 11	34,559 07			
Fines 156 00 566 65 410 05 Peddlers' Licenses 40 00 18 00 16 00 Guides' Licenses 70 00 75 00 50 00 Restaurant Licenses 20 00 30 00 10 00 Cemetery Lots 29 00 40 00 11 00 Tea Room Licenses 90 00 50 00 40 00 Sales of Town Lots 64 00 64 00 64 00 Hay Dues 4 50 62 50 58 00 Miscellaneous 315 67 1,061 59 745 92 Sand 9 50 9 50 Jasper Park. Timber Dues 2,205 10 1,731 69 473 41 Rent 262 50 251 00 11 50 Building Permits 55 25 355 00 259 75 Boat Licenses 913 00 30 00 883 00 Hay Dues 118 50 118 50 Store Licenses 21 00 20 00 10 00 Peddlers' Licenses 21 00 20 00 50 00	Hot Springs Bathing tickets	4,808 75	4,148 75	660 00		
Guides' Licenses 70 00 75 00 5 00 Restaurant Licenses 20 00 30 00 10 00 Cemetery Lots 29 00 40 00 11 00 Tea Room Licenses 90 00 50 00 40 00 Sales of Town Lots 64 00 64 00 64 00 Hay Dues 4 50 62 50 58 00 Miscellaneous 315 67 1,061 59 745 92 Sand 9 50 9 50 Jasper Park. Timber Dues 2,205 10 1,731 69 473 41 Rent 262 50 251 00 11 50 Building Permits 55 25 355 00 299 75 Boat Licenses 913 00 30 00 883 00 Hay Dues 118 50 118 50 118 50 Store Licenses 21 00 20 00 10 00 Peddlers' Licenses 21 00 20 00 10 00 Bestaurant Licenses 20 00 50 00 Grazing Lands 50 0	Fines Peddlers' Licenses	156 00 40 00	566 05 92 00		$410 \ 05$	
Cemetery Lots 29 00 40 00 11 00 Tea Room Licenses 90 00 50 00 40 00 64 00 Sales of Town Lots 64 00 50 00 58 00 Miscellaneous 315 67 1,061 59 745 92 Sand 9 50 9 50 9 50 Jasper Park. Timber Dues. 2,205 10 1,731 69 473 41 Rent. 262 50 251 00 11 50 Building Permits 55 25 355 00 299 75 Building Permits 55 25 355 00 299 75 Building Permits 55 25 355 00 299 75 Building Permits 55 25 355 00 18 50 Store Licenses 110 00 18 50 Hay Dues 118 50 118 50 Store Licenses 21 00 20 00 10 00 Peddlers' Licenses 20 0 70 00 50 00 Gresting Licenses 20 0 50 0	Guides' Licenses	70 00	75 00			
Sales of Town Lots 64 00 64 00 Hay Dues 4 50 62 50 58 00 Miscellaneous 315 67 1,061 59 745 92 Sand 9 50 9 50 9 50 Jasper Park. Timber Dues 2,205 10 1,731 69 473 41 Rent 262 50 251 00 11 50 Building Permits 55 25 335 00 299 75 Boat Licenses 913 00 30 00 883 00 Hay Dues 118 50 118 50 Store Licenses 10 00 10 00 Peddlers' Licenses 21 00 20 00 10 00 Peddlers' Licenses 21 00 20 00 10 00 Restaurant Licenses 20 00 70 00 50 00 Grazing Lands 5 00 5 00 50 00 Guides' Licenses 10 00 10 00 Camping Permits 5 90 258 10 252 20 Rentals 346 18 472 25 126 07 Grazing Lands 12 75 12 75 Transfer Fees <t< td=""><td>Cemetery Lots</td><td>29 00</td><td>40 00</td><td></td><td></td><td></td></t<>	Cemetery Lots	29 00	40 00			
Sand	Sales of Town Lots		64 00			
Timber Dues. 2,205 10 1,731 69 473 41 262 50 251 00 11 50 269 75 262 50 251 00 11 50 269 75 26 265 265 265 265 265 265 265 265 265					745 92	
Rent. 262 50 251 00 11 50 299 75 Building Permits 55 25 355 00 299 75 Boat Licenses 913 00 30 00 883 00 Hay Dues 118 50 118 50 Store Licenses 21 00 20 00 10 00 Peddlers' Licenses 21 00 20 00 10 00 Butchers' Licenses 20 00 70 00 50 00 Grazing Lands 5 00 5 00 Grazing Lands 5 00 10 00 Guides' Licenses 10 00 10 00 Camping Permits 1 00 1 00 Timber Dues 5 90 258 10 252 20 Rentals 346 18 472 25 126 07 Grazing Lands 12 75 12 75 Transfer Fees 4 00 4 90 Stone Quarries 135 00 135 00 Waterton Lakes Park 491 08 743 10 139 00 391 02 Boat Licenses 30 50 10 00 20 50 20 00	Jasper Park.	52,027 63	65,513 58	1,932 51	15,418 46	
Building Permits 55 25 355 00 299 75 Boat Licenses 913 00 30 00 883 00 Hay Dues 118 50 118 50 Store Licenses 10 00 10 00 Peddlers' Licenses 21 00 20 00 1 00 Butchers' Licenses 10 00 10 00 10 00 Restaurant Licenses 20 00 70 00 50 00 Grazing Lands 5 00 5 00 10 00 Camping Permits 1 00 10 00 Camping Permits 1 00 10 00 Yoho Park 3,492 85 2,601 19 1,379 91 488 25 Timber Dues 5 90 258 10 252 20 20 Rentals 346 18 472 25 126 07 12 75 Grazing Lands 12 75 12 75 12 75 Transfer Fees 4 00 4 90 4 90 Stone Quarries 135 00 135 00 391 02 Waterton Lakes Park 491 08 743 10 139 00 391 02						
Hay Dues 118 50 118 50 Store Licenses 10 00 10 00 Peddlers' Licenses 21 00 20 00 1 00 Butchers' Licenses 10 00 10 00 Restaurant Licenses 20 00 70 00 50 00 Grazing Lands 5 00 5 00 10 00 Guides' Licenses 10 00 1 00 1 00 Camping Permits 1 00 1 00 252 20 Rentals 346 18 472 25 126 07 Grazing Lands 12 75 12 75 Transfer Fees 4 00 4 90 Stone Quarries 135 00 135 00 Waterton Lakes Park 491 08 743 10 139 00 391 02 Boat Licenses 30 50 10 00 20 50 20 00 Rent 220 00 32 87 187 13 20 00 Camping Permits 5 00 25 00 20 00 Hay Dues 9 18 75 8 43 Restaurant Licenses 20 00 20 00 38 10	Building Permits	55 25	355 00		299 75	
Batchers' Licenses 10 00 10 00 Restaurant Licenses 20 00 70 00 50 00 Grazing Lands 5 00 5 00 10 00 Guides' Licenses 10 00 1 00 1 00 Yoho Park. Timber Dues 5 90 258 10 252 20 Rentals 346 18 472 25 126 07 Grazing Lands 12 75 12 75 Transfer Fees 4 00 4 90 Stone Quarries 135 00 135 00 Waterton Lakes Park 491 08 743 10 139 00 391 02 Boat Licenses 30 50 10 00 20 50 20 00 Rent 220 00 32 87 187 13 20 00 Camping Permits 5 00 25 00 20 00 Hay Dues 38 10 38 10 Timber Dues 9 18 75 8 43 Restaurant Licenses 20 00 20 00 20 00	Hay Dues Store Licenses.		118 50 10 00			
Grazing Lands 5 00 5 00 10 00 10 00 Camping Permits. 1 00 1 00 1 00 Yoho Park. Timber Dues 5 90 258 10 252 20 Rentals 346 18 472 25 126 07 Grazing Lands 12 75 12 75 Transfer Fees 4 00 4 90 Stone Quarries 135 00 135 00 Waterton Lakes Park. Boat Licenses 30 50 10 00 20 50 Rent 220 00 32 87 187 13 Camping Permits 5 00 25 00 20 00 Hay Dues 38 10 38 10 Timber Dues 9 18 75 8 43 Restaurant Licenses 20 00 20 00 20 00	Butchers' Licenses		10 00			
Camping Permits. 1 00 1 00 Yoho Park. Timber Dues 5 90 258 10 252 20 Rentals 346 18 472 25 126 07 Grazing Lands 12 75 12 75 Transfer Fees 4 00 4 90 Stone Quarries 135 00 135 00 Waterton Lakes Park 491 08 743 10 139 00 391 02 Waterton Lakes Park 220 00 32 87 187 13 187 13 Camping Permits 5 00 25 00 20 00 Hay Dues 38 10 38 10 Timber Dues 9 18 75 8 43 Restaurant Licenses 20 00 20 00	Grazing Lands	5 00	5 00		50 00	
Yoho Park. Timber Dues 5 90 258 10 252 20 Rentals 346 18 472 25 126 07 Grazing Lands 12 75 12 75 Transfer Fees 4 00 4 90 Stone Quarries 135 00 135 00 Waterton Lakes Park. 491 08 743 10 139 00 391 02 Waterton Lakes Park. 220 00 32 87 187 13 187 13 20 00 20 50 20 00 20 00 481 08 75 00 25 00 20 00 38 1						
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Yoho Park.	3,492 85	2,601 19	1,379 91	488 25	
Grazing Lands. 12 75 Transfer Fees 4 00 Stone Quarries. 135 00 491 08 743 10 135 00 391 02 Waterton Lakes Park. 30 50 10 00 20 50 Rent. 220 00 32 87 187 13 Camping Permits 5 00 25 00 20 00 Hay Dues 38 10 38 10 Timber Dues 9 18 75 8 43 Restaurant Licenses 20 00 20 00			258 10 472 25			
Stone Quarries 135 00 135 00 Waterton Lakes Park. Boat Licenses 30 50 10 00 20 50 Rent 220 00 32 87 187 13 Camping Permits 5 00 25 00 20 00 Hay Dues 38 10 38 10 Timber Dues 9 18 75 8 43 Restaurant Licenses 20 00 20 00	Grazing Lands		12 75	4 90		
Waterton Lakes Park. Boat Licenses 30 50 10 00 20 50 Rent 220 00 32 87 187 13 Camping Permits 5 00 25 00 20 00 Hay Dues 38 10 38 10 Timber Dues 9 18 75 8 43 Restaurant Licenses 20 00 20 00					001.00	
Rent. 220 00 32 87 187 13 20 00 Camping Permits 5 00 25 00 20 00 20 00 Hay Dues 38 10 38 10 38 10 Timber Dues 9 18 75 8 43 Restaurant Licenses 20 00 20 00 20 00	Waterton Lakes Park.	491 08	743 10	139 00	391 02	
Hay Dues 38 10 Timber Dues 9 18 75 8 43 Restaurant Licenses 20 00 20 00	Rent	220 00	32 87			
Restaurant Licenses	Hay Dues		38 10			
284 68 106 72 236 06 58 10	Restaurant Licenses					
		284 68	106 72	236 06	58_10	

STATEMENT of Revenue collected within the Canadian National Parks, &c .- Con.

	Fiscal	Year.	Increase.	Decrease.	Net Decrease.
	1911-12.	1910-11.			
Buffalo Park.	S cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Hay Dues	158 32	20 00 60 00	98 32	20 00	
	158 32	80 00	98 32	20 00	
Elk Island Park.					
Timber Dues. Miscellaneous	1 50 41 68	10 00	1 50 31 68		
	43 18	10 00	33 18		
Total	56,497 74	69,054 59	3,818 98	16,375 83	12,556 85

Comparative statement of the homestead entries and sales made during the Fiscal Years ending March 31, 1911, and March 31, 1912, respectively:—

	Fiscal Yea March 3	ar ending 1, 1911.	Fiscal Year ending March 31, 1912.		
	No. of Entries.	Acres.	No. of Entries.	Acres.	
Homesteads	44,479	7,166,640	39,151	6,264,160	
Sales.		443,673	1,070	52,517	

STATEMENT showing the number of homestead entries reported in each year since 1874:—

Departmental Year ended	No. of Entries.	Departmental Year ended	of Entries
October 31, 1874. " 31, 1875. " 31, 1876. " 31, 1877. " 31, 1877. " 31, 1879. " 31, 1880. " 31, 1881. " 31, 1882. " 31, 1883. " 31, 1884. " 31, 1884. " 31, 1885. " 31, 1886. " 31, 1887. " 31, 1888. " 31, 1888. " 31, 1889. " 31, 1889. " 31, 1890. " 31, 1890. " 31, 1891. " 31, 1892. " 31, 1892. " 31, 1893.	1,376 499 347 845 1,788 4,068 2,074 2,753 7,483 6,063 3,753 1,858 2,657 2,036 2,655 4,416 2,955 3,523 4,840 4,067	October 31, 1894 December 31, 1895. " 31, 1896. " 31, 1897. " 31, 1898. " 31, 1899. June 30, 1900. " 30, 1901. " 30, 1902. " 30, 1903. " 30, 1904. " 30, 1905. " 30, 1906. Nine months ended March 31, 1907 Year ended March 31, 1908. " 1909. " 1910. " 1911. " 1911.	3,206 2,39: 1,857 2,38: 4,846 6,686 7,426 8,166 14,677 31,38: 22,073 30,811 41,866 21,647 30,422 39,081 44,473 39,151

STATEMENT showing the number of Homestead Entries made during the Fiscal Years ended March 31, 1911 and 1912, and the Nationality of the Homesteaders as reported by the several agencies of the Department in Manitoba, Saskatchewan. Alberta and British Columbia.

Nationalities.			
Quebec	Nationalities.	of Entries,	of Entries,
Total	" Nova Scotia. " New Brunswick. " Prince Edward Island. " Manitoba. " Saskatchewan. " Alberta. " British Columbia. Persons who had previous entry. Newfoundlanders. Canadians returned from the U.S.A. Americans. English. Scotch. Irish. French. Belgians. Swiss. Italians. Roumanians Syrians. Germans Austro-Huugarians Hollanders Danes (other than Icelanders). Icelanders. Swedes. Norwegians. Russians. Mennonites Jamaicans Brazilians Chinese Japanese Persians. Australians. New Zealanders Greeks Hindoos Bulgarians. Servians. Turks. Spaniards Chilians. Mexicans Spaniards Chilians. Spaniards Chilians. Mexicans Spaniards Chilians.	1,101 237 110 68 1,495 4,061 980 136 1,834 7 553 12,485 6,161 1,291 492 376 133 74 68 175 64 845 2,804 201 206 96 937 1,092 1,858 6	951 182 118 69 998 3,085 863 123 2,132 401 10,577 5,739 1,041 476 437 159 90 45 141 153 201 69 964 1,160 1,781 1 8 6 3 13 12 3 11 5 4 9 9 10 10 10 10 10 10 10 10 10 10
	Total	44,479	39,151

Representing 107,884 souls in 1911.

STATEMENT showing the number of Homestead Entries made during the Fiscal Years ended March 31, 1911 and 1912, by persons coming from the various States and Territories of the American Union.

Dakota, South 782 Delaware 1 Florida 1 Georgia 6 Idaho 228 Illinois 409 Indian Territory 1 Iowa 598 Kansas 200 Kentucky 50 Louisiana 4 Maine 51 Maine 5 Massachusetts 93 Michigan 650 Minnesota 2,213 Missorir 10 Missorir 147 Motana 246 Nebraska 200 New Jarsey 16 New Jersey 16 New Jersey 16 New Jersey 16 Dhio 183 Dklahoma 99 Oregon 157 Pennsylvania 126 Rhode Island 19 Fennessee 34 Fennessee 34 Fennessee 34 Fennessee 34 <th>States.</th> <th>No. of Entries, 1911.</th> <th>No. of Entries 1912.</th>	States.	No. of Entries, 1911.	No. of Entries 1912.
Alabama	Arizona	6	
Arkansas 21 California 83 Carolina, North. 29 Carolina, South 12 Carolina, South 16 Colorado. 16 Colorado. 16 Colorado. 16 Colorado. 16 Colorado. 17 Connecticut 25 Dakota, North 4,339 3, Dakota, South 782 Dakota, South 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Alabama		
California 83 Carolina, North 29 Carolina, South 12 Colorado 16 Columbia, District of 25 Dakota, North 4,339 3, Dakota, North 4,339 3, Dakota, North 4,339 3, Dakota, North 4,339 3, Delaware 1 1 Florida 1 1 Georgia 6 6 Idaho 228 11 Illinois 409 1 Indiana 219 1 Indiana 219 1 Indian Territory 200 6 Louisiana 4 4 Maryland 5 5 Kentucky 50 5 Louisiana 4 4 Maryland 5 3 Maryland 5 3 Michigan 650 3 Minesota 93 3 Minesota 2213 1 Mis			1
Carolina, North. 29 Zarolina, South 12 Colorado. 16 Columbia, District of 25 Dakota, North 4,339 Dakota, South 7 Delaware 1 Florida 1 jeorgia 6 daho 228 Illinois 409 ndiana 219 ndiana 219 ndiana 25 Kansas 200 Kentucky 50 ouisiana 4 Maine 51 Maryland 5 Massachusetts 93 Michigan 650 Minnesota 2,213 Mississippi 10 Mississippi 10 Missouri 147 Montana 246 Vebraska 200 Vebraska 205 New Hampshire 29 Vew Wexto 157 Pemsylvania 126 thode Island 19 Jula<			7:
Solorado	Carolina, North	29	10
Columbia District of Connecticut 25 Connecticut 25 Connecticut 25 Connecticut 25 Connecticut 25 Connecticut 25 Connecticut 28 Conne			
Connection 25 25 25 25 25 25 25 2		16	4
Dakota, South 782 Delaware. 1 clorida 1 eorgia 6 daho 228 llinois 409 ndiana 219 ndian Territory 598 Cansas 200 Sentucky 50 ouisiana 4 Iaine 51 Aaryland 5 dassachusetts 93 lichigan 650 finnesota 2,213 1, fississippi 10 fississippi 10 1 fissouri 246 6 febraska 200 6 fevada 3 3 few Hampshire 29 9 few Mexico 1 1 few Mexico 205 1 blio 183 30 bladona 199 1 remostylania 126 1 thode Island 19 1 remost 32 2		25	1
Delaware 1 Florida 1 Jeorgia 6 daho 228 Illinois 409 Indiana 219 ndian Territory 598 cowa 598 cansas 200 Kentucky 50 couisiana 4 diane 51 diaryland 5 dassachusetts 93 dichigan 650 dinnesota 2,213 dissouri 10 dissouri 147 dontana 246 Vebraska 200 Nevada 3 4ew Hampshire 29 Kew Mexico 1 New York 205 blio. 183 bklahona. 199 Dregon 157 Pennsylvania 19 Honde Island 19 Pennsylvania 19 Honde Island 19 Pennsylvania 19 Honde Island 19 <td></td> <td></td> <td>3,98</td>			3,98
Clorida Clor			61
Georgia 6 daho 228 Illinois 409 ndiana 219 ndian Territory			
daho 228 llinois 409 ndiana 219 ndian Territory 508 owa 598 ansas 200 centucky 50 oouisiana 4 faine 51 faryland 5 fassachusetts 93 lichigan 650 finnesota 2,213 fississippi 10 fissouri 147 fontana 246 febraska 200 levada 3 few Hampshire 29 few Jersey 16 few Mexico 1 few York 205 whio 183 wklahoma 99 regon 157 enneylvania 126 chode Island 19 elemase 34 exas 32 tah 19 ermont 24 firginia 14 firginia, West 12 Vashington 683 Visconsin 678			
ndiana 219 ndian Territory 598 owa 598 tansas 200 tentucky 50 oouisiana 4 Iaine 51 taryland 5 tassachusetts 93 lichigan 650 tinnesota 2,213 tississippi 10 tississippi 10 tissouri 147 fontana 246 tebraska 200 tevada 3 tew Hampshire 29 tew Mexico 1 tew York 205 whilo 183 whahona 99 tregon 157 tennsylvania 126 thole Island 19 eemessee 34 exas 32 tah 19 elmessee 34 exas 32 tah 19 e	daho		13
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rginia, West 12	ermontirginia		2
ashington 683 isconsin 678	irginia, West	12	
	ashington	683 .	45
Johning 30	voming		59
	young	30	1

STATEMENT showing the number of Letters Patent issued by the Department of the Interior for Dominion Lands since 1873 and the number of acres patented.

			Period.	No. of Patents issued.	Acreage.
= 0 3	for 1979	to 21st De	cember	420	67,20
			B1st December	577	92,320
75.	st namuar,		31st October.	464	74.24
		31st Octo		318	50,88
			Jel	2,437	478,84
77, 78.	11	- 11		2,357	462,88
	11	11		2,663	426,08
79,	11	11		1,084	173,44
80,	11	11		1,885	
81,	11	11			400,863
82,	11	11		2,197	506,78
83,	11	**		. 4,341 3,896	831,34
84,	11	11			909,60
Sō,	11	11		. 3,533	898,46
86,	11	11		4,570	942,05
87,	11	11		4,599	1,071,36
88,	11	11		3,275	647,64
89,	11	11		3,282	661,63
90,	11	11		3,273	626,01
91,	11	11		. 2,449	411,07
92,	11	11		2,955	549,25
93,	11	11		. 2,936	502,60
94,	11	11		. 2,553	420,23
	Vovember	and Decen	ber	. 413	66,10
		31st Decei		2,118	348,96
96,	11	- 11		2,665	531,86
97,	11	11		2,972	499,85
98.	11	11		3,037	646,67
99,				3,904	714,74
			30th June	1,970	310,50
		30th June		6,491	6,846,85
02,	u car chacu	noth stille		8,768	4,711,10
$02, \\ 03,$				7,349	3,266,38
04,	+1	11	*****	6,890	2,982,57
	11	11		8,798	6,197,35
05, 06	11			12,370	4,181,34
06,	ot Index 16		Monch		
		006, to 31st		10,596	2,361,33
			1		6,138,97
09,	11	11		22,431	4,215,32
10,	11	11		. 22,854	3,662,25
11,	11	11		. 21,754	3,710,28
12,	11	11		. 19,354	3,155,38
				000 470	At = 10 = 10
				239,458	65,752,72

STATEMENT showing number of Homestead Entries granted in the Provinces of Manitoba, Siskatchewan, Alberta and British Columbia for Fiscal Year 1911-12, as compared with Fiscal Year 1910-11.

MANITOBA.

			MAN	VITOBA.				
Agencies.	1911-12.	1910-11.	Increase.	Decrease.	Total 1911-12.	Total 1910-11.	Increase 1911-12.	Decrease 1910-11.
Winnipeg Dauphin Brandon	2,095 1,012 51	1,994 1,012	101	25				
	3,158	3,082	101	25	3,158	3,082	76	
			SASKA'	TCHEWA	N.			
Yorkton Estevan Regina Humboldt Prince Albert Moosejaw Medicine Hat Battleford Swift Current Saskatoon	1,265 937 341 1,721 2,096 4,083 1,137 2,484 3,453 2,967	1,315 1,033 435 1,738 1,871 5,285 1,589 2,215 5,568 4,178	225	50 96 94 17 1,202 452 2,115 1,211				
	20,484	25,227	494	5,237	20,484	25,227		4,743
			"AL	BERTA.				
CalgaryLethbridgeRed DeerEdmontonGrande Prairie . Peace RiverMedicine Hat	3,837 567 1,731 6,398 492 452 1,707	5,450 933 2,032 5,112 291 2,146	1,286 492 161 439	1,613 366 301				
	15,184	15,964	1,939	2,719	15,184	15,964		780
			BRITISH	COLUME	BIA.			
Kamloops New Westminster	287 38	202 4	85 34					
	325	206	119		325	206	119	
Gran	d total for	fiscal year	ended 1911- 1910-	12 11	39,151	44,479		
Net d	lecrease for	fiscal year	1911-12		5,328	195	5,523	

CORRESPONDENCE.

The following statement shows the number of letters received and sent by the Department in each year since its establishment.

Departmental Year ended October 31.	Letters Received.	Letters Sent.	Total.
Departmental Year ended October 31. 1874. 1875. 1876. 1877. 1878. 1879. 1880. 1881. 1882. 1883. 1884. 1885. 1884. 1885. 1886. 1887. 1888. 1889. 1890. 1891. 1892. 1893. 1894. 1893. 1894.	3,482 1,974 2,256 3,187 4,642 5,556 8,222 13,605 25,500 27,180 27,525 33,970 60,964 47,845 43,407 48,316 36,200 38,000 41,990 50,794 48,619 49,991	Sent. 4,120 2,189 3,097 3,677 6,009 6,179 9,910 15,829 30,300 33,386 43,997 67,973 60,890 52,298 50,500 36,008 36,267 42,203 48,145 50,840 45,898 44,238	7,632 4,163 5,353 6,814 10,651 11,755 18,162 29,434 55,800 60,911 77,967 128,937 108,735 95,705 98,816 72,208 74,207 84,193 98,839 99,459 95,889 91,739
1897 1898 1899 1900 1901 1902 1903 (From June 30, 1902, to July 1, 1903). 1904 (From June 30, 1903, to July 1, 1904). 1905 (From June 30, 1904, to July 1, 1904). 1906 (From June 30, 1904, to July 1, 1905). 1907 (From June 30, 1906, to July 1, 1906). 1907 (From March 31, 1906, to April 1, 1907). 1908 (From March 31, 1908, to April 1, 1908). 1909 (From March 31, 1908, to April 1, 1909). 1910 (From March 31, 1909, to April 1, 1910). 1911 (From March 31, 1911), to April 1, 1911).	65,714 88,913 95,023 121,219 144,978 167,200 185,582 222,316 245,470 407,794 372,231 543,647 721,217 935,217 1,027,933 1,224,316	64,147 87,845 91,876 133,177 136,348 185,548 223,463 274,675 302,723 529,465 620,968 1,106,772 1,114,380 1,174,546 1,280,697 1,304,904	129,861 176,758 186,899 254,396 281,326 352,748 409,045 496,991 548,193 937,259 993,199 1,650,419 1,835,597 2,109,763 2,308,630 2,529,220

The number of registered letters during the departmental year ending March 31, 1912, was: received. 21,309; sent, 27,202.

3 GEORGE V., A. 1913 STATEMENT of Land Sales by Railway Companies having Government

Year.		on's Bay npany.	Pacific	nadian Railway npany.	Colo	ba South- estern nization of Company.	Qu'Appelle, Long Lake and Saskatchewan Railroad and Steam- boat Company.		
	Acres.	Amount.	Acres.	Amount.	Acres.	Amount.	Acres.	Amount.	
		\$		\$		\$,	\$	
1893. 1894. 1895. 1896. 1897. 1898.	7,526 4,431 9,299 10,784 62,000 56,875	48,225 23,209 52,410 53,277 310,000 274,625	93,184 43,155 55,453 66,624 135,681 242,135 261,832	295,288 131,628 176,950 220,360 431,095 757,792 814,857	14,164 6,312 5,623 21,254 63,800 106,473 58,019	57,559 28,003 22,330 88,568 234,644 363,982 199,458	1,603 640 2,391 286 2,524 22,534 61,030	178,517	
(Fiscal Year)	70,196	352,631	379,091	1,152,836	133,507	437,449	18,932	53,974	
Fiscal Year) 1901 Fiscal Year)	82,308	399,804	339,985	1,046,665	59,749	214,953	22,266	74,810	
1902 (Fiscal Year)	269,577	1,112,332	1,362,478	4,440,500	206,411	713,365	39,835	147,365	
1903 Fiscal Year)	330,046	1,939,804	2,260,722	8,472,250	250,372	699,210	843,900	1,476,900	
1904 Fiscal Year)	144,857	879,910	857,474	3,516,864	29,522	113,303			
1905 Fiscal Year)	139,721	865,905	411,451	2,045,800	80,342	296,936			
1906 9 months to	236,191	1,863,375	1,012,322	6,015,060	83,418	360,889			
March 31, 1907)	69,158	742,221	851,083	4,817,632	3,051	22,645	1,353	16,789	
Fiscal Year)	21,184	267,215	81,060	727,367	31,982	153,007	5;621	68,869	
Fiscal Year) 1909	25,449	288,836	29,331	383,390	10,396	84,845	37,662	380,371	
Fiscal Year)	104,382	1,297,454	655,585	10,473,425	14,501	126,950	106,000	964,600	
Fiscal Year)	267,038	3,747,768	715,095	10,372,661	20,313	284,859	113,533	1,237,204	
Fiscal Year) 1912	42,554	808,943	855,280	12,420,488	18,932	117,497	35,213	495,116	
Total	1,953,576	15,627,944	10,709,021	68,712,908	1,218,141	4,620,452	1,315,323	5,094,515	

SESSIONAL PAPER No. 25

Land Grants and by the Hudson's Bay Company.

Calgary and Edmonton Railway Company.		Canadian Northern Railway Company.		Railway Northern		Cen	Great Northwest Central Railway Company.		Totals.	
Acres.	Amount.	Acres.	Amount.	Acres.	Amount.	Acres.	Amount.	Acre.		
	s		8		s		\$	S cts.		
11,260 11,035 46,815 10,553 9,436 15,481 24,738	53,335					120,211 68,668 114,713 108,016 222,225 448,623 462,494	352,847 207,856 222,489 361,338 719,016 1,431,774 1,520,792	2 93 3 02 1 94 3 34 3 23 3 18 3 28		
46,653	128,256					648,379	2,125,146	3 27		
116,719	352,037					621,027	2,088,269	3 36		
323,494	1,033,396					2,201,795	7,746,958	3 56		
231,800	909,600	183,736	631,503	128,435	522,490	4,229,011	14,651,757	3 46		
129,007	563,507	64,469	313,575	41,858	177,081	1,267,187	5,564,240	4 39		
109,191	512,898	231,707	1,221,469	17,593	103,564	990,005	5,046,572	5 09		
85,784	480,063	204,966	1,014,351	20,003	137,503	1,642,684	9,871,241	6 01		
59,515	346,064	289,576	1,711,109	4,023	41,470	1,277,759	7,697,930	6 02		
8,606	75,644	196,946	1,746,504	1,294	13,855	346,693	3,052,461	8 80		
6,370	66,508	*	*	165	7,935	109,373	1,211,885	11 08		
18,323	182,926	285,428	2,783,010	571	6,863	1,184,790	15,835,228	13 36		
11,820	116,231	277,414	3,336,797	1,438	27,417	1,406,651	19,122,937	13 59		
10,853	154,424	365,926	4,216,578	632	11,373	1,329,390	18,224,419	13 70		
1,287,453	4,974,889	2,100,168	16,974,896	216,012	1,049,551	18,799,694	117,055,155	6 23		

THE LAND SITUATION OF MANITOBA, SASKATCHEWAN AND ALBERTA.

Total land area	Manitoba	147,152,880 ac	eres (approx.)
	Alberta.		11
Grand	l total	441.198.320	

SURVEYED AREA.

AREA AVAILABLE FOR CULTIVATION.

	Manitoba.	Saskat- chewan.	Alberta.	Total.
	Acres.	Acres.	Acres.	Acres.
Area in surveyed section (all water covered land deducted)	25,892,630 486,311	67,731,270 81,974	56,163,947 96,603	149,787,847 664,888
of surveyed area in Saskatchewan and 93,856 acres in Northern Alberta	337,887 55,423	1,140,286 263,623	1,244,518 257,735	2,722,691 576,781
Total				153,752,207

AREA NOT AVAILABLE FOR CULTIVATION.

· · ·	Manitoba.	Saskat- chewan.	Alberta.	Total.
Area of water covered lands in surveyed sections Area of road, allowances. Area of Forest reserves. Total	908,882 2,494,240	Acres. 1,689,396 1,407,020 599,642	Acres. 1,722,690 1,073,054 11,881,280	Acres. 6,695,443 3,388,956 14,975,162 25,059,561

DISPOSITION OF SURVEYED SECTIONS.

	Manitoba.	Saskat- chewan.	Alberta.	Total.
Area under Homestead, South African Volunteers' homestead, pre-emption and purchased homestead		Acres.	Acres.	Acres.
entry, Northwest half-breed scrip, Military scrip sales and special grants	13,020,770	32,649,275	22,682,807	68,352,852
land subsidies (chiefly odd numbered sections) Area granted to Hudson's Bay Company (unsurveyed	3,566,997	15,177,063	13,120,014	31,864,074
area of school land endowment (unsurveyed area not	1,613,134	3,787,764	2,637,782	8,038,680
included). Area sold under irrigation system Area of Manitoba swamp lands (selected under	1,438,479	3,762,848 69,200	3,120,219 973,685	8,321,546 1,042,885
"Better terms" Act of 1885)	2,542,850			2,542,850
Grand total				120,162,887

AREA UNDER CROP 1911.

	Manitoba.	Saskat- chewan.	Alberta.	Totals.
Area under wheat " oats " barley " flax " other products Totals	Acres. 2,979,734 1,260,736 433,067 77,789 180,706 4,932,032	Acres. 4,704,660 2,124,057 172,253 950,049 55,402 8,006,421	Acres. 1,616,899 1,178,410 156,418 93,662 231,617 3,277,006	Acres. 9,301,293 4,563,203 761,738 1,121,500 467,725 16,215,459

UNSURVEYED AREA IN MANITOBA, SASKATCHEWAN AND ALBERTA.

As to the remaining land area unsurveyed, a large proportion has not yet been explored, except in a very partial way, but from what is now known generally of the character of this land the area available for some forms of agriculture, though of much less average value than the lands surveyed at this date, might be given as follows:—

	Acres.
Manitoba	19,000,000
Saskatchewan	16,000,000
Alberta	56,000,000
Total area	91,000,000

grand total available for cultivation...... 199,252,207 acres.

Thus it will be evident from the foregoing table of areas under crop for 1911, that only about 8% of the available land in the three Prairie Provinces is yet under cultivation.

GRAIN PRODUCTION IN BUSHELS OF THE THREE PRAIRIE PROVINCES FOR 1911.

	Wheat.	Oats.	Barley.	Flax.
Manitoba	60,275,000 97,665,000 36,143,000	57,893,000 97,962,000 56,964,000	14,447,000 5,445,000 4,151,000	1,123,000 10,688 000 975,000
Totals	194,083,000	212,819,000	24,043,000	12,784,000

3 GEORGE V., A. 1913

STATISTICS AS TO ELEVATOR CAPACITIES IN BUSHELS BY PROVINCES.

Fiscal Year.	Manitoba.	Sas- katchewan.	_	Alberta.	Totals.
1900-01 1901-02 1902-03	10,323,272 $12,255,000$ $16,121,400$		0 5,105,000	• • • • • • • •	$12,759,352 \\ 15,449,000 \\ 21,226,400$
1903-04 1904-05 1905-06 1906-07	19,297,000 19,557,630 20,656,100 20,502,200	8,951,600 12,989,500	7,917,000 8,934,000	1,715,500 2,785,500	27,214,000 28,491,630 31,323,200 36,277,200
1997-08. 1908-09. 1909-10.	21,015,600 20,558,500 21,624,500	14,666,500 17,924,500 24,314,500		3,818,900 4,386,400 8,080,400	39,501,000 42,869,400 54,019,400
91011 91112	21,813,800 22,410,500	26,465,000 29,314,000		8,764,500 9,863,000	57,043,300 61,587,500

WHEAT.

A very interesting side-light is thrown on the development of the wheat production of the west by a glance at some figures taken from the report of the Department of the Interior for the year 1891. For that year the total wheat production for what are now the three prairie provinces, was stated to be 30 million bushels.

For the season of 1911, twenty years later, the total wheat production in this territory was 194 million bushels, over six times as much. The production of Manitoba has more than doubled in this time, while that of Saskatchewan and Alberta together has become over 19 times as great.

STATISTICS AS TO RAILWAY MILEAGE BY PROVINCES.

Year	Manitoba.	Saskatchewan.	. Alberta.	Totals.
1901	2,056	1,107	978	4,141
1902	2,128	1,102	978	4,208
1903	2,224	1,117	978	4,319
1904	2,364	1,180	1,020	4,564
1905	2,672	1,523	1,020	5,215
1906	2,823	1,973	1,200	5,996
1907	3,074	2,025	1,323	6,422
1908	3,110	2,081	1,323	6,514
1909	3,205	2,630	1,323	7,158
1910	3,526	3,350	1,774	8,650
1910	3,678	3,536	1,895	9,109

RAILWAYS IN MANITOBA, SASKATCHEWAN AND ALBERTA IN 1911.

Railways.	Manitoba.	Sas- katchewan.	Alberta.	Totals.
Canadian Pacific Railway Canadian Northern Railway. Grand Trunk Pacific Railway Great Northern Railway	1,558 1,747 212 161	1,800 1,321 415	1,273 221 401	4,631 3,289 1,028 161
Totals	3,678	3,536	1,895	9,109

The commercial development of the work is indicated by the following table:

Branches of Canadian Chartered Banks by Provinces.

Fiscal Year.	Manitoba.	Saskatche- wan.	_	Alberta.	Totals.
1901 1902 1903 1904 1905 1906 1907 1907 1908 1909 1910	52 53 64 86 90 104 146 161 164 171	39 48 91 116 131 187 320	10	41 49 77 89 97 140 220	71 76 106 160 170 201 314 366 392 498 732

PEACE RIVER DISTRICT.

The Peace River District containing an approximate area of 87,850 square miles lying northwest of Edmonton, 5,470 of which are in the province of British Columbia, may be described as a level to undulating plateau, with large areas of prairie land interspersed with groves of cottonwood or aspen.

The soil is chiefly a deep rich clay loam. At the World's Columbian Exposition of 1893, wheat grown in this district was awarded first prize. An experimental farm established two years ago is in operation at Fort Vermilion.

For land administration purposes the district is divided into two Dominion Land Agencies, namely: Peace River and Grande Prairie, with offices at Grouard and Grande Prairie. The country around Lesser Slave Lake, Bear Lake, Pouce Coupe and Dunvegan is rapidly filling up.

The Peace River, which, with three obstructions, is navigable for steamboats for about 863 miles, contains a trough-like valley throughout the district varying from 500 to 1,000 feet in depth and from 1 to 3 miles in width. The principal tributaries of the Peace are the Red, Loon, Smoky and North and South Pine rivers. Several transportation companies have boats in operation in the district.

IMMIGRATION.

3 GEORGE V., A. 1913

The Report of the Superintendent of Immigration will be found in Part II of the General Report. A Supplementary Report is also made by the Superintendent this year in his capacity as Chief Controller of Chinese Immigration, which office he assumed on the 2nd October, 1911, in pursuance of an Order in Council passed on the 31st May, 1911, and his subsequent appointment by a further order, dated the 4th August, 1911. Some interesting statistics relating to Chinese immigration will be found in the report referred to.

The following is a comparative statement of immigrant arrivals, apart from Chinese, at inland and ocean ports, from 1897 onward:—

Year.	Great Britain and Ireland.	Other Countries except United States,	United States.	Totals.
1897 1898 1899 1900 (6 months)	11,383 11,173 10,660 5,141 11,810 17,259 41,792 50,374 65,359 86,796 55,791 120,182 52,901 59,790 123,013 138,121	7,921 11,608 21,938 10,211 19,352 23,732 37,099 34,786 37,364 44,472 34,217 83,975 34,175 45,206 66,620 82,406	2,412 9,119 11,945 8,543 17,987 26,388 49,473 45,171 43,543 57,796 34,659 58,312 59,882 103,798 121,451 133,710	21,716 31,900 44,543 23,895 49,149 67,379 128,364 130,331 146,266 189,064 124,667 262,469 146,908 208,794 311,084 354,237

BRITISH IMMIGRATION.

I had the pleasure last year of drawing attention to a greatly increased immigration from the British Isles. The number of immigrants arriving from Great Britain and Ireland in 1909-10 was 59,790; in 1910-11 the number was 123,013, and I am glad that we are able to record a still further increase of arrivals in 1911-12, the period covered by the present report. During this year 138,121 British immigrants have arrived, declaring their intention of settling in Canada. In last year's report allusion was also made to the increased stringency of the immigration regulations, and it may be remarked that this stringency has not had the effect of lessening the number of immigrants, but there can be no doubt that it has stimulated the movement to Canada of really desirable people, who evidently regard emigration to this country with all the more favour when they find that we are inclined to admit none but high-class immigrants, people who are physically and mentally sound and otherwise qualified to succeed in Canada.

CONTINENTAL IMMIGRATION.

An increase also is shown in the number of immigrant arrivals from overseas. The number for 1910-11 was 66,620, and for 1911-12 the records show 82,406.

This yearly increasing flow of immigration from Continental Europe speaks well for the effectiveness of our advertising propaganda on the Continent, in spite of the many difficulties placed in our way there.

About one-third of the continental immigrants entered for homesteads in Western Canada during the year, many others purchasing lands from corporations or private owners and others engaging as farm labourers or in domestic service.

AMERICAN IMMIGRATION.

It will be seen that the immigration from the United States has continued to increase. The number of new arrivals for last year was 121,451; this year it was 133,-710. It will be seen from this that our agents in the United States are keeping up, and, indeed, extending their good work for Canada. The immigrants we get from the United States are practically all farmers and farm labourers, drawn for the most part from the farming communities of the Western States.

JUVENILE IMMIGRATION.

The general supervision of child immigration falls within the province of the Chief Inspector of British Immigrant Children and Receiving Homes, whose report, which appears as part of the superintendent's report, will, no doubt, be read with special interest.

SURVEYS.

Seventy-six survey parties, each in charge of a Dominion Land Surveyor, were employed; the total number of men on these parties was somewhere in the neighbourhood of twelve hundred. Forty-two of these parties were paid by the day; thirty-four worked under contract at rates per mile fixed by Order in Council.

Ten of the parties paid by the day were engaged in establishing the initial meridians and base lines which are the governing lines of the Dominion Lands System of Survey and must be marked on the ground before the subdivision of any part of the country for settlement can be proceeded with. There is now a demand for land in widely scattered localities; the subdivision of these localities requires the extension of the base lines and meridians over an enormous extent of country. Eight hundred and sixty-five miles of these lines were surveyed. The other daily paid parties were engaged in restoring obliterated surveys and doing work of a miscellaneous character not suitable for execution under contract. Settlements were laid out at several points on the Athabaska river, in order to enable the squatters to acquire title to their lands without too much delay. The subdivision of their lands into townships and sections could not have been proceeded with for several years because the base lines were not ready. A topographical survey of the valley of Fiddle Creek, Jasper Park, between the Hot Springs and the Grand Trunk Pacific railway, was made for the purpose of laying out roads, town-sites and a system of water distribution.

The contractors subdivided one hundred and sixty-five whole townships and eight fractional townships, while a partial subdivision was made of three hundred and thirty others, and a resurvey either partial or complete of two hundred and twenty-five others. This represents 5,146,080 acres of original subdivision and 1,127,360 of surveys other than original subdivision. The new townships are mostly in Northern Manitoba, Saskatchewan north of Battleford, and in Alberta along the line of the Grand Trunk Pacific and in the Peace River District.

Over seventeen thousand miles of lines were surveyed. When the surveyors' field notes are received, each mile has to be carefully scrutinized in order to make sure that the survey has been properly executed and that there is no mistake or error in the measurements. The plans of the surveys have next to be plotted and printed for the use of the administration and of the public. A staff of one hundred and twenty-seven men, mostly men of high technical qualifications, is engaged upon this work. Over six hundred and fifty plans and eighty-six maps were issued and printed in the lithographic office of the surveys.

A staff of seventy-six survey parties, many of them consisting of several surveyors and pupils, requires a large instrumental equipment. It is estimated that there are in use on the Survey of the Dominion Lands no less than two hundred transit theodolites, one hundred sidereal watches, and a proportional number of clinometers, aneroids, steel tapes, &c. The perfection of the surveys depends upon the quality and proper adjustment of the surveyors' instruments; this is now provided for at the Surveys Laboratory, where all instruments are carefully examined, tested and adjusted before issue to the surveyors. The laboratory equipment consists of one vertical and three horizontal collimators, all with micrometer eye-pieces, a level trier, a standard barometer, an aneroid testing apparatus, a micrometer microscope, a sidereal clock and chronograph and four temperature boxes for testing watches. The laboratory is further provided with the necessary facilities for astronomical work so that the surveyors may acquire the practice of the observations necessary for their surveys. The laboratory has already proved extremely useful; it is expected that it will have a most beneficial influence on the surveys.

Following are the usual tables showing the distribution of parties last year and the subdivision or settlement survey work completed each year since the inception of the surveys, with the result of last season's operations added:

Period.		27 1
	Acres.	Number of Farms of 160 acres each.
Previous to June, 1873. 1874. 1875. 1876. 1876. 1877. 1878. 1879. 1880. 1881. 1882. 1883. 1884. 1885. 1886. 1887. 1886. 1889. 1890. 1890. 1890. 1890. 1890. 1890. 1890. 1900-1901. 1900-1901. 1900-1901. 1901-1902. 1902-1903. 1903-1904. 1904-1905. 1905-1906. 1906-1907 (9 months). 1907-1908. 1909-1910. 1910-1911. 1911-1912.	4,792,292 4,237,864 665,000 420,507 231,691 306,936 1,130,482 4,472,000 6,147,000 10,186,000 27,234,600 6,435,000 391,680 1,379,010 643,710 1,131,840 516,968 817,075 76,560 1,395,200 2,928,640 300,240 406,240 506,560 428,640 859,840 1,022,720 735,480 1,023,735,480 1,023,735,480 1,023,735,480 1,024,735,200 2,553,120 6,173,440 12,709,600 10,671,520 4,973,920 6,123,040 7,412,870 7,423,200 5,683,200 5,146,080	29,952 26,487 4,156 2,628 1,448 1,918 7,066 27,950 50,919 63,662 170,212 40,218 2,448 8,620 4,023 7,074 3,231 5,106 476 8,720 18,304 1,876 2,539 3,166 2,679 5,374 6,392 4,596 10,023 15,957 38,584 79,435 66,697 31,087 23,873 38,269 46,330 46,335 35,520 32,163

The parties were distributed by provinces as follows:-

_	In Manitoba.	In Saskatche- wan.	In Alberta.	In British Columbia.	Partly in one province and partly in another	Total.
Paid by the day	3 3 1 7	3 16 19	12 13 	6 1 7	15 2 1 18	39 34 3 76

BOARD OF EXAMINERS FOR DOMINION LAND SURVEYORS.

The Board of Examiners for Dominion Land Surveyors met in February and May, examinations being held at Ottawa, Montreal, Kingston, Toronto, Winnipeg, 25—c

Regina, Calgary, Edmonton and Vancouver. Out of 268 eandidates, fifty-seven received certificates of preliminary examination and forty-eight were granted commissions as Dominion Pland Surveyors.

RECIPROCITY AMONG SURVEYORS.

At the Colonial Conference in 1907, a motion was submitted by the Government of New Zealand for the purpose of establishing reciprocity among land surveyors throughout the Empire. Reciprocity had already been secured between New Zealand and the several states of Australia; the proposal was to extend this arrangement to the other parts of the Empire. The motion was discussed at the Conference and a resolution was adopted favouring reciprocity and commending it to the consideration of the several governments.

In order to devise means for carrying out the desire expressed by the resolution, the Dominion, Commonwealth, State and Provincial Governments were invited by His Majesty's Government to send representatives to a conference of the Surveyors General of the Colonies to be held in London. This invitation was duly communicated to the Provincial Governments in Canada: all replied that they did not propose sending delegates. A like answer was received by the Imperial Government from Newfoundland and the Union of South Africa. The Surveyor General of Dominion Lands was authorized to represent Canada. The Conference was held in May and June, 1911, the delegates present being the Surveyor General of Dominion Lands, representing Canada, and Messrs, E. A. Counsel, Surveyor General of Tasmania, and Allan Spowers, Surveyor General of Queensland, representing New Zealand, the Commonwealth of Australia and the Australian States with the exception of South Australia. Delegates from the Ordnance Survey, the Institution of Civil Engineers and the Surveyors' Institution represented the United Kingdom, Colonel Sir Duncan Johnston, late director of the Ordnance Survey, being elected Chairman. Right Hon. Sir George Reid, High Commissioner for Australia, took part in the proceedings on behalf of his government.

At the first session, the Surveyor General of Dominion Lands submitted a synopsis of conditions in Canada, pointing out that in each province the local surveyors were incorporated and the surveyors from the other provinces rigidly excluded. As it had not yet been possible to establish reciprocity among the several provinces of the Dominion, there was little prospect of the adoption by Canada of the wider scheme of reciprocity throughout the Empire.

The Conference prepared a syllabus for the examination of candidates and advised the formation of a Central Board for supervising the details of the scheme. Their report concludes as follows:—

'The free discussion which has taken place at the Conference does not permit the delegates to overlook the difficulties which undoubtedly exist in the way of a general agreement for reciprocity; and although they are conscious that the scheme they have formulated will not provide a complete answer to every objection which can be raised, they venture to submit it as offering a groundwork for a future agreement among the Dominions, Provinces or States who desire to enter

into reciprocal arrangements. Should any governments not find it practicable to accept in its entirety, the scheme herein submitted, it may be that they will be able to adopt such parts of it as their circumstances permit. Even if a part only of the examinations for qualifying as surveyors should be accepted throughout the Empire, so that a candidate who had passed that part of the examination in any portion of the Empire would be excused having to undergo it again, in order to qualify as a surveyor in another portion of the Empire, a step forward would be made.'

ASTRONOMICAL BRANCH, INCLUDING THE INTERNATIONAL BOUNDARY AND GEODETIC SURVEYS,

The work of the Observatory has followed the same general lines as in previous years.

In the Astrophysical Division, the principal work has been, as before, the determination of the orbits of spectroscopic binary stars. The elements of the orbits of six binaries have been completed during the year. During the year 715 stellar spectra were secured, about 130 less than in the previous year. This decrease is in great part due to the fact that fainter stars have to be observed, requiring longer exposure times.

The spectrographs have remained practically unchanged, no improvements having suggested themselves. A five inch plane grating ruled by Dr. J. A. Anderson, of Johns Hopkins University, was obtained about the new year, which gives great concentration of light in the first order at one side, over 50% of the light incident upon the grating being diffracted into this order. A spectrograph has been designed, and is now being constructed in the Observatory, to enable this grating to be used in stellar spectroscopy, and it is hoped that valuable results may be obtained.

The work on the solar rotation which, as stated in the last report, was definitely arranged for at the Mt. Wilson meeting of the International Union for Co-operation in Solar Research in 1910, has been actively prosecuted during the year. The rotational values are about 2% lower than those obtained by Adams in 1906-7 and 1908, but whether this is due to a real change in the rate or to some instrumental or personal cause is not yet determinable. It may be stated that some very curious and unexplainable differences in measures of the same plates by different observers have appeared, some of which are of greater magnitude than the above difference. The law of decrease of the velocity of rotation with increase of solar latitude is of practically the same form as determined previously. Possibly the most important result obtained has been to show, by the discussion of very large numbers of residuals, that, so far as these measures are concerned, there are no systematic differences in the velocity obtained from lines of different elements. It is proposed to continue this work during the coming summer.

The two azimuth marks are now in use in transit circle work. Permanent houses to protect the piers and marks are to be erected shortly. An examination of the changes of azimuth and of level during the last two years has shown these to be very

small and the stability of the pier and transit to be very satisfactory. The mounting of the circle microscopes is not sufficiently rigid, so that a change to the form of mounting used on the Repsold circles is contemplated.

Observations of right ascension have been carried on continuously so far as possible since March, 1910; in that year 5,371 and in 1911, 2,522 transits were observed. This year there are a sufficient number of observers to admit of observing from evening until morning. The reduction of the 1910 observations is about completed and the deduced right ascensions ready for publication. There were 2,428 zenith distances observed last year, including many stars whose declinations are required for our latitude determinations.

, A rigid investigation of pivot errors has been made this year and the results computed and tabulated.

The chief advance in the Observatory Time Service has been the installation of the Magneta clock system in the Victoria Museum, which is much superior to that employing batteries. As the Master clock is self-winding and there are no batteries or contact points very little attention is required.

During the past calendar year the two Bosch photographic pendulums have recorded seventy-five earthquakes in various parts of the world, and 18 bulletins have been issued to 61 stations.

From the observatory have been issued stereographic projection tables computed for the more important stations of the world for facilitating the location of earthquake epicentres, and the method based thereon has found very general use and acceptance.

Dr. Klotz represented Canada at the International Seismological Conference in Manchester, England, last July. Besides presenting several papers he succeeded in having adopted a uniform nomenclature and form of bulletin for earthquakes, which was badly lacking heretofore.

The study of microseisms and their relationship to the action of waves on the sea-shore, consequent to areas of low barometer on the ocean, is being continued.

The magnetic survey of Canada occupied the territory west of Winnipeg to the Rocky Mountains and northward to the north branch of the Saskatchewan. In all 60 stations were occupied at each of which the three elements, declination, inclination and intensity were determined.

To the magnetic equipment was added a Toepfer Earth Inductor, used for standardizing dip circles.

At five stations in British Columbia, Prince Rupert, Hazelton, Atlin, Revelstoke and Field, the latitude and longitude were astronomically determined and at two of these, Hazelton and Atlin, permanent meridian marks were placed.

The surveys along the various sections of the International Boundary line have been continued as heretofore. The 141st meridian of west longitude, which forms the boundary between Yukon Territory and Alaska, was projected to a point about ten

miles from the Arctic Ocean, and good progress was made with the final monumenting and with the triangulation and topography of the adjacent country. It is expected that the survey will be completed to the Arctic Ocean during the coming summer. There will then remain about ninety miles of the meridian to be surveyed between Natazhat Ridge and Mount St. Elias. This is a very difficult region, being covered with high mountains and ice fields. Surveys were carried on to define the boundary of the Alaska coast strip east of Mount St. Elias, and along Portland Canal. The survey of the 49th parallel was carried as far as Red river. This completes the survey of the southern boundary of British Columbia, Alberta, Saskatchewan and Manitoba, with the exception of about ninety miles between Red river and Lake of the Woods, which will be taken in hand this summer. The surveys for the re-monumenting of the 'Ashburton line' were continued along the St. Francis river and the straight line running southwesterly therefrom. Surveys were made on the lakes at the head of St. Croix river to define the boundary between New Brunswick and Maine.

The operations of the Geodetic Survey comprised reconnaissance and triangulation in many widely separated parts of the Dominion. The main net-work extends over the southern parts of Ontario and Quebec. A chain of triangulation to follow the Bay of Fundy has been begun, as a basis for the three maritime provinces. Another chain is following a course parallel to the International Boundary, from Lake Superior westward and another is in progress along the British Columbia coast.

The general plan of the Geodetic Survey contemplates the making of triangulations at places where they will be of most immediate use, the intention being to extend these local triangulations as opportunity offers until ultimately they are connected together and form a whole.

Geodetic levelling was carried on in Quebec, Ontario, Manitoba and Saskatchewan. The total distance levelled during the year was 893 miles.

A noteworthy event of the year was the twelfth annual meeting of the Astronomical and Astrophysical Society of America, which was held at the Observatory on August 23, 24, 25, 1911. Five sessions devoted to the reading and discussion of papers, to the reports of committees and to other business were held. About 35 members of the society, including many of the leading astronomers of the United States, were present. Aside from the sessions several social functions were arranged, and it is believed that all present thoroughly enjoyed themselves. Their appreciation was expressed by unanimous resolutions of thanks, and their opinion of the work of the Observatory was voiced in the following resolution which was unanimously adopted:—

Resolved: That the Astronomical and Astrophysical Society of America, assembled at the Dominion Observatory for its twelfth annual meeting, has examined in detail the work of the Observatory and expresses its very favourable opinion of the character of the investigations carried on in all its departments. This is particularly the case with the determination of radial velocity, from which unusually valuable results have been obtained by means of a tele-

scope of comparatively small size. In view of the pressing need for such data, the society hopes that a more powerful telescope may soon be provided, and one in keeping with the standing now attained by the national observatory of Canada.

FORESTRY,

Good progress was made in organizing the work of administering the forest reserves. This work was greatly augmented by the large increase in the reserved area during the previous year. An experienced inspector was secured to supervise the work in Alberta, and plans were made for the inspection of the work on the eastern reserves and in the railway belt of British Columbia. Under the inspectors are placed supervisors who take charge of the actual work on each forest reserve and who are assisted by technically trained foresters and a staff of forest rangers. Progress was made in the methods of regulating the cutting of timber on forest reserves by small mills to satisfy the demands of settlers for lumber. Grazing on a portion of the Turtle Mountain Forest Reserve was provided for by the erection of a fence and by the adoption of special regulations. New regulations for grazing and timber cutting on the reserves in general are urgently needed and are now under consideration.

Six parties were engaged in timber surveys. Examinations were made of timber conditions in portions of the region between Manitoba and Hudson Bay, and also of non-agricultural forested tracts which have been recommended for inclusion in forest reserves.

The fire loss during the year was comparatively light on account of frequent rains during the summer, but during a short dry season in the spring of 1911 several fires occurred in Northern Manitoba and Saskatchewan. Only one fire killed timber in a forest reserve and this timber was sold and cut before its value had deteriorated greatly. A small steamer for fire patrol was put into use on the Λthabaska river, which is often too swift for canoes.

The need of better inspection of the work and movements of the fire rangers is becoming increasingly evident in order that greater efficiency may be secured.

On account of the steadily increasing demand for trees for planting on farms, which now taxes to the utmost the output of the nursery at Indian Head, purchase was made of a half section of land near Saskatoon, and arrangements made for the establishment of a new nursery.

The collection of statistics of forest products was steadily continued and several bulletins were published giving valuable information in regard to the production and use of wood in Canada. A special investigation into the wood using industries of Ontario was made. It is of great importance that this line of work be rounded out by the initiation of thorough investigations into the waste of wood in manufacture and of experiments in new processes which might prevent waste.

REINDEER AND WOOD BUFFALO.

During the year an experimental shipment of fifty reindeer was made from Dr. Grenfell's herd at St. Anthony, Newfoundland, to Fort Smith, on Slave river,

N.W.T., with a view to determining whether these animals can be successfully bred in that vicinity. It is too early, as yet, to state positively that the experiment has been successful, but the deer proved to be fairly good travellers and have demonstrated their ability to maintain themselves during the winter upon the moss which covers a considerable part of sub-Arctic Canada. The depredations of wolves, the pest of flies and the probability that Indian hunters will fail to discriminate between domesticated reindeer and wild caribou are problems as yet unsolved. Should this experiment prove successful a profitable industry may be developed in breeding reindeer in districts where eattle cannot be profitably maintained.

Efforts have been made to locate the several herds of wood buffalo known to be roaming in the vicinity of Fort Smith. Reliable information has been obtained of the existence of at least three herds, comprising from 300 to 500 animals, but little definite information has been secured. Further efforts are being made to locate these herds with a view to protecting them from the depredations of wolves and Indian hunters and thus to preserve from extinction the last herd of wild buffalo known to exist on this continent, where they once roamed in countless thousands.

IRRIGATION AND HYDROGRAPHIC SURVEYS.

The most prominent feature in connection with irrigation during the past year has been the rapid development of the large projects under construction by the Canadian Pacific Railway Company and the Southern Alberta Land Company. The former company has completed the works for the irrigation of the western third of its 3,000,000 acre tract near Calgary, and has applied to the government for an inspection of the system and the issue of a license for the use of water. The inspection is now under way and will, it is expected, be completed during the year. The works of the Southern Alberta Land Company are also approaching completion and will require similar inspection at an early date.

The rapid development of the West has resulted in increasing demands for water for domestic use in cities and towns and the procuring of such supply is one of the most important problems with which these growing municipalities are confronted.

The work of stream measurement, which was established upon a systematic basis some three years ago, has been extended as far as the limited appropriation would permit and the records obtained have proved of great value not only in determining the feasibility of irrigation projects, but, to an even greater extent, in connection with the development of water-power and the supply of water for domestic purposes in towns and cities. The published reports of the work have been widely circulated and it is evident from the demand for the reports and from the testimony of engineers and others that the work is appreciated by those who best know its worth.

DOMINION PARKS.

During the year a separate branch was organized for the administration of the Dominion Parks with Mr. J. B. Harkin as commissioner. Mr. Howard Douglas remained the chief outside officer with the new title of Chief Superintendent of Parks.

That the matchless scenery and natural wonders of these mountain recreation grounds are fast being recognized is evidenced by the large annual growth in the number of visitors. Nearly 75,000 visitors registered at the Rocky Mountains Park during the past year, an increase of 10,000 over 1911. To meet this large increase in traffic, increased accommodation of every sort has been found necessary. The Canadian Pacific Railway Company during the year has made additions to its hotels both at Banff and Lake Louise to meet the demands. The revenue derived from the parks is annually growing in proportion and there is every reason to look forward to a very satisfactory percentage of income upon the capital account expended.

The work of building new roads and trails to places of particular interest continued during the year and those already existing kept in good repair. Work was also begun on the government's section of the new automobile road from Calgary to the coast. When completed this will be one of the most attractive scenic motor routes in the world, making possible as it does, a tour of some 500 m⁻¹ through mountain scenery of unequalled beauty.

A new conservation dam at Lake Minnewanka in connection with the Calgary Power Company's development schemes lower down the Bow river, has been under construction. Advantage was taken by the Department of the erection of this dam to provide for the reservation of some 800 to 1,000 horse-power for its own use. This will supply an abundance of electricity in the future for lighting and other purposes at Banff at a very low cost. Reservations of tar sands were also made at Fort McMurray with a view to a future supply in connection with road construction throughout the parks.

The need of more commodious and modern buildings at the Banff Hot Springs was much felt during the year, as it was often found impossible to accommodate the increasingly large number of visitors who wished to avail themselves of the baths. Preliminary plans have been submitted for the construction of larger and more suitable buildings and it is hoped that at least one will be completed before the close of the next fiscal year.

Development work in the new Jasper Park consisted chiefly in the building and clearing of roads and trails. A contour survey was undertaken of the district between the Athabaska river and the Fiddle Creek hot springs, with a view to securing the best possible location for a road to the springs. When they are once accessible these springs will no doubt become very popular as the waters possess valuable therapeutic qualities with a considerably higher temperature than those at Banff. The Grand Trunk Pacific line is now completed through the Park and the Canadian Northern is under construction.

The Buffalo in Elk Island, Buffalo and Rocky Mountains Parks continue to thrive and show a satisfactory increase. There are now over 1,000 in Buffalo Park alone. Plans are being made for the realizing of a yearly revenue for the Department from the disposal of the old bulls, who are otherwise doomed to inevitable destruction by the herd with a consequent total loss to the government. The possibility of deriving a revenue from the fur-bearing animals of the parks is also being investigated.

WATER POWERS.

The success obtained within the last few years in the development of electric transmission of power, and the unsurpassed water-power resources of Canada, have brought this country into the first rank of economical power producing countries. Water-power, once capable of local use only, can now be developed and transmitted in the form of electric energy from remote and inconvenient places to serve the power requirements of cities and towns within an area of 100,000 square miles. Western Canada has abundance of power, and although most of it is not at present within the range of economic development, on account of distance from market or other reasons, there are important water-powers within easy transmission distance of present centres of population easily capable of supplying power needs for many years to come. Several important developments in various parts of Western Canada have already been carried to successful completion, and further important developments are in contemplation many projects have been placed before the Department for authorization under Water Power Regulations pursuant to section 35 of the Dominion Lands Act,

No special attention was given by the Department to power matters on Dominion lands until, on the recommendation of the late R. E. Young, a separate division of the Railway Lands Branch was organized in 1908 for that purpose, with J. B. Challies, hydraulic engineer of that branch, in charge. Under Mr. Young's general direction the work of that division steadily increased in scope and importance, until it was found necessary to have a separate and distinct water-power branch organized, with a recognized superintendent who could give his entire time to matters relating to water-power and reclamation of Dominion Lands. Accordingly, a 'Water-power Branch' was created in December, 1911, shortly after Mr. Young's death, with Mr. Challies as superintendent. A staff of competent consulting engineers for outside field work has been secured, the advantage of which is evidenced by the successful ind satisfactory construction to date of important works, under departmental supervision. Departmental rulings with respect to design-involving stability of structure or the maximum advantageous use of the power site—when backed by such advice are rarely questioned by private interests affected, and in every ease the private interest is directly and materially benefited by the advantage of extra expert experience. It has been the practice in most cases to require that the private interest benefited should reimburse the Department for the expenses incident to such expert advice.

The fundamental idea of the miscellaneous field work of the branch is to gather such data as will enable the Department to dictate the most advantageous method of utilizing important power sites, of present economic importance, having in mind all possible uses of the water for water supply, irrigation, navigation and power.

SCHOOL LANDS.

Owing to the lateness of the harvest last season and the partial failure of the crop, it was thought advisable to postpone the series of auction sales which it had been intended to hold in Saskatchewan during the summer of 1911.

A few isolated parcels were, however, disposed of in the three provinces, chiefly for railway right of way and school sites, as follows:—

Manitoba. -203.05 acres for \$4,208.76, or an average of \$20.73 per acre.

Saskatchewan.-1,517.27 acres for \$48,429.59, or an average of \$31.92 per acre.

Alberta.-373.07 acres for \$5,402.54, or an average of \$14.48 per acre.

According to the report of the chief of the School Lands Branch, the total area disposed of to the 31st of March, 1912, in each province, after making the necessary adjustment for cancellations and for changes in area, is as follows:

Manitoba.—Area sold to 31st March, 1912, 577,255.74 acres for \$5.528,932.19.

In addition to this town lots were disposed of for \$5,806, making the total represented by the sales, \$5,534,738.19. Average price per acre, \$9.60. Of this amount, \$3,096,104.25 has been collected.

Of this sum \$30,000 was advanced to the province, leaving the amount of principal collected and standing to the credit of the fund on the 31st March, 1912, \$3,066,104.25.

Saskatchewan.—Area sold to March 31, 1912, 505,861.33 acres for \$6.859,233.48.

Town lots were also sold for \$771, making the total amount represented by the sales \$6,860,004.48. Average price per acre \$13.56.

Of the above amount \$2,033,865.71 has been collected and was standing to the credit of the fund on the 31st March, 1912.

Alberta.—Area sold to 31st March, 1912, 557,646.27 acres for \$6,429,481.89. Average price per acre \$11.53.

Of the above amount \$1.770, 403.63 was collected and standing to the credit of the fund on the 31st March, 1912.

GRAZING.

There were 1,332 grazing permits issued during the past year and the revenue from this source and from the grazing leases still in force was \$25,968.26.

HAY.

The revenue from this source was \$7,716.55.

COAL.

The number of coal leases in force at the close of the fiscal year was 89, and the revenue from these and from coal permits for domestic use was \$19,622.

Attached to the report of the School Lands Branch are three statements, lettered respectively A., B. and C., showing duly classified the revenue from all sources of school lands during the fiscal year, the net total for each province being as follows:—

Manitoba	\$377,710 14
Saskatchewan	 539,133 98
Alberta	 673,029 30

Total amount collected during the past fiscal year. .\$1,589,873 42

Under the provisions of the several Orders in Council in that behalf, the net revenue collected from the school lands in each province during the fiscal year, after deducting the principal moneys and the cost of management, was paid over to the government of each province, the amount so paid being as follows:—

Manitoba	\$ 99,599 06
Saskatchewan	184,679 93
Alberta	185,249 76

In addition to the above amounts the following sums were paid to the Provincial Governments of Manitoba, Saskatchewan and Alberta by the Finance Department as the interest accrued on the School Lands Fund of each province for the fiscal year:—

Manitoba	 		 	 	 	 	 	\$88,094	57
Saskatchewan	 	. .	 	 ٠.	 	 	 	58,873	11
Alberta	 		 	 	 	 	 	50,797	04

Adding to the above amounts the sums paid over to the provinces for revenue collected during the fiscal year, the total payment to each province for the period mentioned was as follows:—

Manitoba	 \$187,693 63
Saskatchewan	 243,553 04
Alberta	 236,046 80

The total expenditure for the three provinces during the past year was \$28,252.78, and, as the total revenue was \$1,589,873.42, it will be seen that the cost of management was less than 2% of the revenue collected.

THE YUKON TERRITORY.

With regard to the development of the Yukon Territory, it is satisfactory to note that the increased price of copper has led to the re-opening of some of the copper mines near Whitehorse by a strong company which has options on many undeveloped properties, all of which it is understood are to be thoroughly tested.

In the vicinity of Dawson the Canadian Klondike Mining Company are putting together an immense dredge for use on the Klondike river, which may be operated for a short period this season.

The gold production during the last fiscal year, according to royalty returns, was \$4,024,236.75, a decrease from the previous year of \$2,590.75. This decrease might be accounted for by the fact that a large number of properties formerly worked by individual miners have been acquired by one concern, which has not commenced operations as yet.

I have the honour to be, sir,

Your obedient servant,

W. W. CORY,

Deputy of the Minister of the Interior.

PART I.

DOMINION LANDS



DOMINION LANDS

No. 1.

REPORT OF THE COMMISSIONER.

Office of the Commissioner of Dominion Lands,

OTTAWA, July 10, 1912.

W. W. CORY, Esq., C.M.G., Deputy Minister of the Interior, Ottawa.

Sir,—I beg to submit my report for the twelve months ending March 31, 1912, on the Dominion Lands Branch of this department, together with the reports of the inspectors of Dominion Land Agencies, and of the agents of Dominion Lands for the several districts.

The following summary has been prepared of the work transacted in the Dominion Lands Branch during the period mentioned as compared with the corresponding twelve months of the previous year:—

	1911.	1912.
Number of files dealt with	227,610	228,198
Letters written	164,135	162,475
Triplicates	107,049	106,447
Total letters	271,1784	268,922
Applications for patent:—		
Number examined	32,024	35,369
New applications	18,126	18,096
Applications accepted and notifications sent		
out	18,280	17,908

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

J. W. GREENWAY,
Commissioner of Dominion Lands.

No. 2.

REPORT OF INSPECTOR OF DOMINION LAND AGENCIES.

(H. G. Cuttle.)

Office of the Inspector of Dominion Land Agencies,
Brandon, Manitoba, July 3, 1912.

J. W. Greenway, Esq., Commissioner of Dominion Lands, Ottawa, Ontario.

SIR,—I beg to submit annual report of the Inspector of Dominion Land Agencies for the departmental year ending March 31, 1912.

My duties as inspector did not commence till May 1, 1912; I am therefore not

in a position to go into detail as to the different branches of the work.

I am enclosing herewith the following statements of work performed, with comparative figures for the two preceding years:—

- 'A.' Dominion Land Offices.
- 'B.' Dominion Land Sub-Offices.
- 'C.' Homestead Inspectors.

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

H. G. CUTTLE,
Inspector Dominion Land Agencies.

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A .- Dominion Land Agencies, Manitoba and Saskatchewan, principal transactions for the Departmental year ending March 31, 1912.

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iture.	Disburse- ments.	s cts.	2,122 77											15,054 36	17,547 93 18,574 68
Expenditure	Salaries.	s cts.	8,784 39	6,452 60	5,715 16	7,415 53	20,980 77	8,472.74	5,459 59	12,734 43	10,989 82	20,262 02	6,918 08	118,285 13	112,136 84 100,258 66
Staff.	10 .oV		G. 7	[-	73	c	21	œ	9	51	=	12	9	125	120
Rovenno		ct.;	87,338 62	101	183	578	171	166:	492	062	560	622	255	1,470,357 45	1,115,769 01 959,875 70
61.8	Sent.		32,101	12,335	16,525	24,374	59,761	29,118	12 516	47,488	41,900	23,938	22,767	329,607	317,204
Letters	Received.		23,637	19,410	15,229	21,193	69,415	23,031	13,579	43,945	34,251	19,480	23,077	312,911	307,793
stimits f	Hay Pe		353	223	305	383	739	444	369	609	497	17:0	242	1,88.1	3,735
Permits .1	rədmiT ənssi		688	1.857	121	195	1,769	1,674	16	31	692	1,608	385	9,299	8,286 6,578
	Land E		1,032	. 55 . 55	665	481	3,419	743	167	1,967	2,280	968	542	12 584	14,869
stions stent ived,			1,042	8 83	677	1,349	1,910	077	729	1.974	1.207	367	1,628	12,093	12,344 14,257
X.	Serip.		79	- 22	=	x -1	170	89	-	112	175	2	35	718	1,039
ž	Purchased Home- steads.		116	:	46		661	1.5	=	100	283			096	1,244
Land Sales.	Pre- emptions.		27.4	:	506		2,225	600	12	088	0.850			5,669	8,819 9,550
	Ordi- mary.		18.8	3 5	2	57	68	69	15	1	22	33	5	594	595
ead Engranted.	Homest tries		2,486	181	200	1.769	4.087	9,036	341	9.774	3,455	9,007	1,366	22,329	26,734
	Agencies.		Battleford	Brandon	Petovan	Humboldt	Mooseisw	Prince Albert	Ramina	Saskatom	Swift Current	Winning	Yorkton.	Totals 1911-12.	1910-11

H. G. CUTTLE, Inspector of Dominion Land Agencies.

B.—Dominion Land Sub-Agencies. Manitoba and Saskatchewan. Work performed during the Departmental year ending March 31, 1912.

																3	GE	Or	ıuı	E. V	., A.
Remarks	source of the so		Commenced Mar. 16 '11, Resig. Feb. 19 '12.	" March 1, 1912.	16 00 Resigned Nov. 16, 1912 3 98 Resigned Feb. 28, 1912	70 Commenced March 16, 1912.	42 Office closed.			Resigned Feb. 17, 1912.					79 Resigned Feb. 16, 1912.	Commenced March 2, 1912.	\$ 50 E. C.	Commenced March 10, 1911.			Commenced Oct. 9, 1911.
Expenditure.	Postage and Com- missions.	& cts.			16 3 3	, 96	83	30	-3"	21 0/	, , ,	- 9	731 7	4, 23		63	011	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	3 250		25 69 7 13
Бхреп	Salary.	\$ cts.	275	300 88	187 275	왕	32		300	8 0 8 8 8 8	480	900 480	9000	300	75	300	300	3 9	009	0 0 0 0 0 0	720 00 116 66
Amounts remitted to	Land Offices.	\$ cts.	516 90	2,078 30	340 25	30 00	1,720	3,480 50	2,873 40				00 600,2								12,580 50 905 71
cations for	ilggA gsH		12	. 4	0 2	9.2	77	∞	77	2 9	∞ 8	215	8:	67	771						25.5
cations for 19d	ilqqA miT edin			: :		:		58			55			:	:	:	143				899
cations for	lsuŢ			° 59		C1 5	7	132			E 8										263
tol snoitso	ilqqA otsq		10		117	:		243			69										27.4
and Pre-	cpssec		34	158	57.22	8 2	110	343	212	212	181	550	311	098	96	185	111	137	209	23 E2	763
Place			Pine Valley	Nokomis, Sask	Punnichy, Sask.		Arcola, Sask	Wadena, Sask	Wynyard, Sask	Makinak, Man	Duck Lake, Sask	Mapie Creek, Sask Gull Lake, Sask.	Ogema, Sask.	Unity, Sask	Vita, Man	Shellbrook, Sask	Swan River, Man	Canora, Sask	Lloydminster, Sask	Winnipegosis, Man	Willow Bunch, Sask Notre Dame, Sask
Name			Anderson, S. A	Arthur, F. G.	Butcher, H.	Canham, J.	Cook, C. C.	Carpenter, C. A Robertson, M	Denovan, R	Decuninck, A)	Gilchrist, A. P.	L	Hall, J. K.	N	Hanger, J. W.	Harley, H	Hazell F	Holland, W. H.	Hunking, W. H.	Lapointe, P.

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65 Resigned March 15, 1912. 69 Commenced March 16, 1912. 85 75 77 Commenced May 22, 1911.	0 mo	46 Resigned Feb. 19, 1912. 31 Resigned March 1, 1912. 73 14 69	97 114 34
812 117 157	25.73 25.73 25.73	66 64 18 18	1,314 1,438 1,156
25 25 26 26 26 26 26 26 26 26 26 26 26 26 26	250 250 250 250 250 250 250 250 250 250	275 10 550 500 300	17,193 66 16,237 11 15,071 16
	2,281 30 17,902 36 1,317 20 10,764 62 8,323 10 2,195 90	200 68 13,936 1,157 5,953 2,081	1663 205,470 97 1212 201,137 00 1138 169,319 02
103 13 84 84 84 84	288888°	17 101 19 48 31	
123	11 4	26 4 105 10 152 7	2282 2121 2086
134 6 6 294 295 58	227 146 134 49	327 28 29 127 92	4625 4331 3714
349 12 276 318 154	214 341 190 154 148	175 14 14 206 202	6469 5965 6914
559 20 601 365 47 47	161 387 387 124 439 428 428	13 566 45 142 142	10308 10650 11039
Maher, H. N. Battleford, Sask Chisholm, J. R. N. Battleford, Sask Metheral, P. E. Weyburn, Sask Murdoch, J. D. Zealandia, Sask Newth, R. Watrons, Sask Oliver, C. F.		Wachna, Theo Stuarburn, Man. Probizanski, J. Stuarburn, Man. Wiebe, J. F. Herbert, Sask. McClelland, R. S. Herbert, Sask. Young, J. W. Melfort, Sask. White, F. R. Sheho, Sask	Totals.

H. G. CUTFLE,
Inspector of Dominion Land Agencies.

C.—Statement showing the principal work performed by Homestead Inspectors, Manitoba and Saskatchewan, for Departmental Year ending March 31, 1912.

1	
Remarks.	\$30. 25 Commenced Nov. 30, 1911. 100 50 938 73 938 73 939 87 939 87 705 85 11 months work. 551 96 Commenced Feb. 19, 1912. 552 96 Commenced Jan. 2, 1911. 922 30 10 months work. 400 705 19 712 53 10 months work. 712 65 8 11 months work. 383 80 6 months work. 384 90 11 11 11 12 12 55 1 months work. 385 50 6 1 months work. 385 50 6 1 months work. 885 70 1 months work.
Travelling Expenses for Self and Team.	ਜੰ ਦੇ ਦੇਜ਼ ਦ
Miles cravelled by Raji.	4, 1, 386 1, 386
, Miles Miles travelled by travelled Wagon.	27.27.74. 2.2.27.7.27.27.27.27.27.27.27.27.27.27.2
Applica- tions for Patent taken.	80.28 × 22.22
Leand Inspections made.	8:115821287288872525113887558888888888888888888888888888888
Headquarters.	Moosejaw, Sask. Regina Basswood, Man Basswood, Man Battleford Radisson Manor, Sask. Humboldt, Sask Brandon, Man Moosejaw, Sask Brandon, Man Hadisson, Sask Winnipeg, Man Regina, Sask Winnipeg, Man Regina, Sask Winnipeg, Man Silhert Plains, Man Sorkton Sorkton Sorkton Sorkton Morse Lloydmister, Sask Yorkton Swift Current Morse Lloydmister, Sask Marceliu Swift Current Morse Lloydmister, Sask Lloydmister, Sask Marceliu Sekink, Man Moosejaw, Sask Eretije Valley, Sask Lanigan Winnipeg, Man Moosejaw, Sask Hanley, Sask Lanigan Winnipeg, Man Whoyeluy, Sask Lanigan Winnipeg, Man Musuphay, Sask
Name.	Bowyer, H. L. Budhanan, D. Budhanan, D. Budkanan, D. Budkanan, D. Collins, F. M. Collins, F. M. Dobrecole, E. J. Dickin, Geo. Duggan, L. Douglas, A. C. Brratt, W. H. Gilbson, J. S. Jonasson, P. C. Goodrich, J. S. Jonasson, P. C. Kennedy, F. Lagimodière, W. McGregor, R. E. McGowan, G. McGowan, D. McGowan, D. McGarkly, D. J. McGarkly, D. J. McGarkly, D. J. Michod, M. Morrison, D. Morrison, D. Morrison, W. F. Oliver, F. Nichol, W. F. Oliver, E. Nurse, A. Ostrosky, M. Pepthand, R. P. Porteous, L. C.

125 70 Commenced Mar. 14, 1912. 802 9011 " " 376 654 " " " " " " " " " " " " " " " " " " "		
25 28 28 28 28 28 28 28 28 28 28 28 28 28	26,365 90	26,445 20 24,884 98
2,222 1,222 1,222 1,222 1,453 1,453 1,150	88,585	88,137 61,251
283 720 720 720 720 720 720 720 720 720 720	102,618	108,490
	2,507	3,396
	6,555	6,462
Winnipeg, Man Swift Current, Sask Grand Coulee Frince Albert Swift Current Battleford Roblin, Man Roblin, Man Fertile Valley, Sask.		
Reykdal, Paul. Shields, Wm. Skene, Alex. Smell, Smith, Gavin G. Sparshatt, A. B. Sparshatt, Gavin G. Spers, Geo. I. Sutons, Geo. I. Sutons, Geo. I. Sutons, Geo. I.	Totals	Compared with 1910-11

H. G. CUTFILE,
Inspector of Dominion Land Agencies.

No. 3.

REPORT OF INSPECTOR OF DOMINION LAND AGENCIES.

(J. W. Martin.)

Office of Inspector of Dominion Land Agencies, Calgary, Alberta, May 1, 1912.

J. W. GREENWAY, Esq., Commissioner of Dominion Lands, Ottawa.

SIR,—I beg to submit herein my annual report for the fiscal year ended March 31 last.

From time to time during the past year I have made regular inspections of the different land agencies and a few of the sub-agencies, and I have much pleasure in stating that the business at all of the offices was found to be in good condition. The sub-agencies have been checked regularly by Assistant Inspector Mr. J. A. Bannerman, who has, as well as myself, attended to a large number of special investigations during the period just past. Our reports in connection with these different inspections have been submitted to you, and I believe the general work has been found satisfactory.

As each agent has submitted to you an annual report, there is no need of my going into detail as regards the volume of work at each point, but I am submitting below a comparative statement of the years 1911 and 1912, which will give you a good idea of the general increase in business throughout my territory.

A new land office was opened last year at Grande Prairie, Alberta, which is situated in the renowned Peace River country. A homestead inspector is attached to this office and the agency is in a position to transact business to the satisfaction of the public, as well as the department. It is expected that this agency will do considerable business during the coming season, as indications point to quite an influx of settlers to the Peace River country during the summer and fall of 1912.

A few sub-agencies have been established during the past year at convenient points through the province of Alberta, and one or two additional homestead inspectors have been appointed, which, with the additional offices, should enable the officials to look after the business of the department in a very satisfactory manner indeed.

A few additions have been made to the numbers of the staffs at different offices, which additions were required on account of the increased volume of work. Several resignations of officials have been handed in during the past year, but successors were appointed promptly by the department, thereby lessening to a minimum any interference with the discharge of business.

Large expenditures were incurred by the two irrigation companies in southern Alberta during the past season, and this year promises to be the busiest in the history of these projects.

In the early part of last season indications pointed to a wonderful harvest, but on account of the continued wet weather during the latter part of the season, the crop was somewhat of a disappointment. The yield was particularly good, but on account of so much moisture it did not give the grain a chance to ripen sufficiently and the grades were not of as high a standard as usual; however, a great deal of grain which did not grade satisfactorily was turned into feed and the farmers through the province

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were able to dispose of the same to good advantage. The crop prospects for 1912 are very bright, as the weather so far this spring has been ideal. While a large portion of the land which was under crop last year is not planted so far, but is in summerfallow, the breaking which was done last year, a large portion of which is planted this spring, will probably offset this.

A great deal of railway construction was carried on during the summer and fall of 1911 and before the expiration of 1912 a good many more branch lines throughout the province, it is expected, will be im operation. It is also expected that considerable activity in railway construction in the north country will be carried on during this year.

From all over the country reports are received and all portions of the west seem to have a general air of prosperity. Present indications point to a large influx of settlers for 1912.

Below will be found the comparative statement referred to.

A	Reve	enue.	Expenses.		
Agency.	1911. 1912.		1911.	1912.	
Lethbridge Calgary Red Deer. Edmonton. Medicine Hat. Peace River. Kamloops. New Westminster. Grande Prairie. Totals. Totals 1911 Increase.		221,116 21 384,560 24 91,296 26 317,076 24 547,584 24 6,960 67 63,463 66 14,536 98 7,352 13 1,653,946 65 1,043,224 96	4,719 62 2,511 00 (9 months) 84,215 70	\$ cts. 8,206 37 20,639 56 8,281 75 24,411 30 11,846 50 5,449 32 7,217 26 5,620 47 3,048 17 94,720 70 84,215 70 10,505 00	

Your obedient servant,

J. W. MARTIN,

Inspector.

No. 4.

REPORT OF THE AGENT AT BATTLEFORD.

Battleford, Saskatchewan, April 10, 1912.

The Commissioner of Dominion Lands, Ottawa.

Sir,—I have the honour to submit for your consideration the annual report of this office for the fiscal year ending March 31, 1912.

A number of new townships were thrown open for settlement during the year in the northern part of the district, all of them containing large areas of first-class arable land with the advantage of a plentiful supply of water and timber. These lands are being rapidly taken up, many of the entrants being settlers who disposed of their patented homestead and pre-emption at high figures and located South African scrips.

A new branch of the Canadian Northern railway is now in operation from North Battleford to Mervin, a distance of about 45 miles in a northwesterly direction. To the south the roadbed of the Biggar to Battleford branch of the Grand Trunk Pacific railway is practically completed and ready for the steel. It is expected to be in operation early this summer, as may possibly be the case with the Battleford to Cut Knife branch. Another branch of the same railway is to be built from Saskatoon to Battleford, and when this is done this point will then be an important railway centre.

The past winter has been remarkably mild and free from storms and no loss has been sustained by stock owners. The snow had completely disappeared by the end of March. The weather has been very warm since then and seeding will be general in a few days.

Last year's crops were damaged by frost and a lot of the grain could not be threshed, but good prices somewhat made up for the otherwise serious losses. The price of cattle has also very materially increased during the last few years.

There has been an increase of over \$15,000 in the general revenue of this office over the preceding year and a corresponding increase of work.

The following is a statement of the work performed during the past year:-

	Number.	Revenue.
Homestead entries	2.486	\$24.840 00
Pre-emption entries	274	2,730 00
Purchased homestead entries	116	1,150 00
Improvements	159	8,562 47
Land sales	55	4.994 85
Pre-emption payments	106	11.494 51
Purchased homestead payments	161	29,272 85
Townsite sales	13	690 48
Search, map sales, office fees, &c	527	141 60
Timber permits (Dominion lands)	683	351 10
Timber seizures "	7	27 05
Hay permits "	241	771 65
Grazing rentals "	1	5 26

Number.	Revenue.
	\$ 11 00
Hay permits " 237	596 S0
Grazing rentals " 33	400 60
Seed grain and provision repayments 26	1,081 44
Mining fees	193 50
Mining rentals 2	23 40
South African scrips located	
Half-breed scrips located 2	
Applications for patent received 1,042	
Applications for inspection received 642	
Entries cancelled	
Letters received	
Letters written	
Total revenue	\$87,338 62

Your obedient servant.

L. P. O. NOEL,

Agent of Dominion Lands.

No. 5.

REPORT OF THE AGENT AT BRANDON.

DEPARTMENT OF THE INTERIOR.

DOMINION LANDS AND CROWN TIMBER OFFICE,

BRANDON, MANITOBA, April 4, 1912.

J. W. GREENWAY, Esq., Commissioner of Dominion Lands, Ottawa.

Sir,—I have the honour to submit my report for the year ending March 31, 1912. The spring is opening under very favourable conditions, the heavy rains of last fall and the severe frost during the winter insuring good crop conditions for the present year. The farmers are busy preparing to seed, which in some parts has already commenced. The area cropped increases annually and, instead of exclusive wheat

growing, attention is being paid to other grains and roots.

Stock raising is one of the chief industries in Manitoba. The importation of thoroughbred horses, cattle, sheep and swine, as displayed at the winter fair held here in March last, would do credit to one of the older provinces, and this fair is a great incentive to all farmers to improve their stock. More attention could be paid with advantage to poultry raising, as the province does not raise enough for its own consumption, and large quantities of fowls and eggs have to be imported. There is an ever increasing demand for farm lands from outside parties, both for purchase and homestead. Many of the improved farms in this district, close to the city, have changed hands at prices ranging from \$35 to \$40 per acre. The lands available for homesteading in my agency are being secured by farmers who have purchased lands in the vicinity, or by their sons. The homesteaders in most cases fulfil their duties, attaching more importance to their farming operations than formerly.

Immigration has already commenced, large numbers coming from Great Britain and the United States. Many go further west. The farmers depend upon these settlers for both outside and inside help and the wages paid them are very high.

The following is a statement of the work performed during the past year:-

Homestead entries granted	51
Timber permits issued	186
Hay permits issued	
Entries cancelled	
Applications for patents	88
Letters received	
Letters written	6,780

I am, sir, Your obedient servant,

L. J. CLEMENT,

Agent of Dominion Lands.

No. 6.

REPORT OF THE AGENT AT CALGARY.

DEPARTMENT OF THE INTERIOR, DOMINION LANDS AND CROWN TIMBER OFFICE. CALGARY, ALBERTA, May 6, 1912.

J. W. GREENWAY, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

Sir.—I have the honour to submit herewith my annual report of the work of this

office for the fiscal year ending March 31, 1912.

The lands disposed of as free homesteads, including South African scrip and Half-breed scrip, make a total of 6,461 entries, representing approximately 1,033,760 acres.

Settlement has been carried on during the past year with undiminished vigour. In the last annual report of the office, attention was directed to the tract of country east of the Red Deer river, through which railway construction was being pushed forward. The greater part of this territory will be served by the Canadian Northern railway by the end of the present season, and with the opening of many new post offices, transportation facilities and other developments which attend the advent of a railway line, a great degree of stability will be imparted to the entire district. Firstclass agricultural land, as a result of the free homesteading policy, has become scarce, and realizing this scarcity settlers are more careful in holding down their claims than in past years, knowing as they do that if they lose their homestead it will be difficult to secure another desirable one. Consequently, although the cancellation work of the office is still important, considerable care is being exercised by homesteaders in filing their defences and making an effort to carry on their duties.

According to this year's district map there are approximately 769,760 acres of land still available, representing some 4,811 free homesteads, and while, as has been i.

pointed out, this land is not first-class, it is of a class very desirable for the grazing of stock and mixed farming generally.

There has been no diminution in the number of enquiries from intending settlers from the United States as well as from the British Isles and eastern Canada. Therewere received here during the past year 80,050 letters, and 85,748 were mailed from the office.

The weather last fall seriously delayed threshing operations, and in a large number of cases grain had to be left in the field in stook. It was feared that this grain would be greatly damaged, but general reports show that these fears were unfounded.

The congestion of grain at terminal points has caused considerable delay and inconvenience in marketing it, and it would appear as if there would be not much. prospect of entirely overcoming this difficulty until transportation and storage elevators, both at points of production and the terminals, shall have greatly increased. If this congestion should have a tendency to force farmers to engage in a more diversified form of farming it will not be an unmixed evil, and it would almost seem as if the time were opportune for inclusion in the requirements of earning patent for lands, for each homesteader to have at least a certain number of cattle and swine. This would have a far-reaching effect; it would necessitate a more permanent residence on the land and prevent the land from being impoverished by being continually cropped without fertilizing, and also insure the farmer a much better return, by marketing the finished product in the shape of beef cattle and hogs, instead of the raw product alone.

The prospects for the coming season were never better. Winter wheat came through the winter without any damage at all, and inspectors report that it is showing up finely, particularly in the southern districts where it is more extensively grown.

The past winter has also been a good one for the cattle industry, having been entirely free from severe storms. There has been a noticeable upward trend in the price of beef.

The leniency extended by the Department in not forcing payments on pre-emptions has been greatly appreciated by the settlers, and will enable them to retain the land and carry on their duties, which otherwise they could not have done in a great many cases.

A general review of conditions shows that the prospects for the present year are excellent. All classes are imbued with a feeling of optimism. Building activity is only limited by dealers in building material not being able to get the quantity needed. and by the scarcity of labour which is general all over the west in all lines of enterprise.

The cost of living has increased fully 15 per cent during the past year, and there is no apparent hope of any abatement.

The following is a statement showing in detail the transactions of the Dominion Lands Branch:

	Nun	ber.	Revenue.
Homestead entries	8	3,836	\$38,300 00
Pre-emption entries		2,147	21,430 00
Purchased homesteads		143	1,430 00
Improvements		336	21,785 49
Land sales (cash)		86	15,039 39
Pre-emption payments		2,840	162,150 37
Purchased homestead payments		427	44,178 75
Searches, maps, etc		442	110 50
Applications for patent received		1,070	
Applications for inspection received		2,038	
Entries cancelled	6	3,733	

	Number.	Revenue.
South African volunteer bounty entries	242	
Half-breed scrip	7	
		\$304,424 41

Your obedient servant.

W. E. TALBOT.

Agent of Dominion Lands.

No. 7.

REPORT OF THE AGENT AT DAUPHIN.

DEPARTMENT OF THE INTERIOR,

DOMINION LANDS AND CROWN TIMBER OFFICE,

DAUPHIN, MANITOBA, April 2, 1912.

J. W. Greenway, Esq.. Commissioner of Dominion Lands, Ottawa, Ont.

SIR,—I have the honour to report as follows on the Dauphin Land District for the

year ending March 31 last.

The business has been heavy throughout, though the cash received is only slightly in excess of last year. The extra work has largely been in connection with the free timber permits, which are considerably more numerous than in any previous year. The total permits were 1,814; receipts from same \$8,560.94, against 1,367 last year with cash \$6,636.49, a difference of \$1,924.45, averaging only \$4.06 per permit for the extra number, showing that very many free permits were secured. Of these I feel confident many were not due the applicants, though every precaution possible was taken in the office to avoid the issue of fraudulent ones, but owing to the fact that requisitions had to be, or were taken by justices of the peace and commissioners, it was found that affidavits were accepted by these officers which should never have been taken, and would not have been had they been presented for swearing to any of our own officers. I would strongly urge that before another winter some scheme be evolved whereby all requisitions shall be taken before either officers of the Department, or others who will adhere to the regulations and insist on applicants teiling the truth and the whole truth as to their claims for free timber.

I have one instance before me where a commissioner has evidently deliberately dated a jurat some five days before the actual date on which the applicant presented himself before the officer, this with a view to assisting the applicant to evade a seizure of timber which he had cut prior to making requisition or securing permit.

The work of keeping the accounts of each timber reserve separate from each other and from the Crown lands outside of these reserves added considerably to the

work but will without doubt be of great assistance to the Forestry branch.

Homestead entries are within one of last year's number, but from the numerous letters of inquiry received I anticipate a marked increase for the coming year. Many of these letters are from settlers in the west, due doubtless to the fact that owing to dry seasons, on the open plains, attention is now being drawn to our bush

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and scrub lands, which in the past have always been well watered; another cause no doubt being the projection of the Hudson Bay railroad, traversing this district.

Crops were good and generally harvested in fair condition, prices high and little difficulty in getting grains to market, no marked shortage of cars existing so far as I can gather. Owing to the early closing of fall, but little plowing was accomplished, less in fact than I can remember being the case during my many years here, and it is to be hoped that the present promise of an early spring may be fulfilled, so as to enable our farmers to get on the lands with as little delay as possible, and in this way make up the shortage.

Trade has been good, wages rising steadily, in all trades, and the cost of living in towns increasing very fast, this due no doubt to the general prosperity of the

people as a whole.

The improvements in roads, &c.. have been marked, these taking a more permanent character, steel being adopted in all the principal bridges being erected. All kinds of stock wintered well, as feed was plentiful, and the weather, barring parts of January, all that could be wished; that month was very cold. There were practically no storms, and but a light snow fall, excepting in the north, but there was ample for the usual timber operations, which I understand were prosecuted by the larger mill men to a considerable extent.

A report that placer gold had been discovered near Minitonas on the Canadian Northern, some 100 miles distant, created a small rush, but this was proved unquestionably to be without any foundation, and the excitement ceased as quickly as it started, though a very large number of people rushed to the ground, and some 40 filed locations. Practically the whole country side was staked, irrespective of any discoveries, and had the results proved that there was gold there, much litigation would have resulted, owing to irregular stakings, &c.

I would suggest that a limit be placed on the time during which a homesteader can acquire a free timber permit, and would suggest not more than five years from date of entry, as in my opinion a settler who has not availed himself of the privilege in that space of time, should, if of any use to the country, be in a position to pay stumpage on such timber as he may require, this more especially as the supply of available timber is rapidly decreasing.

The health of the district has been good, no epidemic having visited it.

I subjoin a statement of the principal items of work passed through the office during the year.

Your obedient servant,

F. K. HERCHMER,

Agent of Dominion Lands.

Synopsis of principal items of work passed through the Dauphin Lands and Timber Office during year ending March 31, 1912:—

	Number.	Cash Received.
Homesteads	1,011	\$10,100 00
Improvement payments		3,275 15
Land sales cash	19	1,026 90
Searches	475	121 77
Applications for patent received	402	
" cancellation	342	
Cancellations effected	383	

Timber Reserves and Dominion Lands—	Number. C	ash Receiv	red.
Bonus	1	200 (00
Rents		25 (
Timber permits		8,560 9)4
Seizures	·	1,833 4	
Hay permits		287 ()5
Mining—			
Location fees	3S -	190 (00
Assessments		102 3	50
Sundries	ĩ	16 (00
School Lands—			
Sales	7	1,790 8	52
Timber permits		209 7	75
Hay permits	118	240 (30
Rentals		32 3	57
Miscellaneous—			
Seed lien payments	4	76 8	35
Total cash		\$28,104	05
Letters received	19,410		
" written			
Staff		\$6,452	06

No. 8.

REPORT OF THE AGENT AT EDMONTON.

DEPARTMENT OF THE INTERIOR,

DOMINION LANDS AND CROWN TIMBER OFFICE,

EDMONTON, ALBERTA, April 6, 1912.

The Commissioner of Dominion Lands,
Department of the Interior,
Ottawa, Ont.

SIR,-I have the honour of submitting the annual report of the work of this office

for the fiscal year ending March 31, 1912.

It is gratifying to note that the past year has been one of exceptional industrial and commercial development, and was generally favourable to the settlers within the district. Though the season was somewhat backward and the ripening of the crops was thereby delayed, yet the loss resulting from early frosts was confined to comparatively small areas, and within these areas was only partial. The winter season was unusually mild and throughout the year employment was easily obtained at very satisfactory wages.

A year ago I reported an increase of 25 per cent in the number of homestead entries granted over the preceding year, and, as will be seen from the figures below,

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there has been a similar increase this year. This settlement has been well distributed around the outer margin of the district, with a natural preference for those parts through or towards which railways are being built. As to the class of settlers coming into this district, the high standard of the preceding year has been fully maintained.

As will be observed from the figures below, the general revenue of this office has fallen some three thousand dollars below that of last year, and this falling off, amounting to nearly fifty thousand dollars, took place in the Mining Lands and Yukon Branch. This, it would appear, is due to two causes: first, the failure to find petroleum on the lands leased for that purpose, the second, the fact that a large amount of the rentals paid was forwarded direct to head office. It will be observed, too, that the very marked increase in the revenue of the other branches almost made up for this shortage. The actual work handled by this office was undoubtedly greater than for the preceding year, and this is true even of the Mines Branch, which showed so great a falling off in revenue. Throughout the year there has been a constant endeavour to place and keep the records of this office in the best possible condition, and for whatever has been accomplished in this direction, the agent cheerfully acknowledges the loyal co-operation of a good staff.

For your information I attach the following comparative statement:-

Patent Branch—	1911.	1912.
Homestead entries. Pre-emption entries. Purchased homesteads Land sales. Applications for patent Applications for inspection Entries cancelled. Revenue. \$86,55	5,109 17 40 197 2,725 1,531 2,582 26.11 \$	6,386 16 19 206 2,599 1,976 2,651 3104,987.09
Timber, Grazing and Irrigation—		
Timber permits	1.945 533 54 037.18	2,190 589 55 \$77,655.18
Mining Lands and Yukon—		
Mining fees. Rentals. Royalties. Coal permits. Sundries. Revenue\$126,09	112 78 37 3 953 97.68	67 84 36 4 101 6175,747.58
School Lands—		
Timber permits. Hay permits. Grazing rentals Coal rentals Sundries. Revenue.	27 397 30 9 17 ,600.24	34 385 40 2 31 \$5,019.36
Miscellaneous— Seed grain payments. Revenue. \$5 25—i—2½	134 .522.86	 81 \$3,316.00

General— 1911. 1912.

 Letters received.
 73,765
 78,830

 Letters written.
 82,371
 90,537

 Total revenue.
 \$320,733.97
 \$317,076.24

Your obedient servant,

K. W. MACKENZIE,

Agent of Dominion Lands.

No. 9.

REPORT OF THE AGENT AT ESTEVAN.

DEPARTMENT OF THE INTERIOR,
DOMINION LANDS AND CROWN TIMBER OFFICE,
ESTEVAN, SASKATCHEWAN, April 12, 1912.

J. W. GREENWAY, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

Sir,—I have the honour to submit the annual report of this office for the year ending March 31, 1912.

The business transacted during the year shows a substantial increase over the previous year in all branches. There has been a slight falling off in the number of homestead entries, owing to the fact that the lands now open for settlement are at the west end of the district and a considerable distance from the railway.

The Weyburn-Lethbridge branch has been running trains as far as Ogema for some months, and it is expected that in a short time the service will be extended further west. This will be a great boon to the settlers of that district. The Canadian Pacific railway are also building a line west from Estevan and expect to have steel laid this year.

The crops throughout most of this district last year were very good, but owing to the rains during the threshing season and early setting in of winter, a considerable amount of grain was not threshed. Contrary, however, to expectations flax and wheat which lay out all winter are in much better condition than was expected.

There has been no car shortage at this point, so that farmers have had no difficulty in shipping their grain.

Much satisfaction has been expressed by the holders of purchased homesteads that the erection of a \$300 house is no longer necessary if they are residing on their free homesteads, and also the fact that homesteaders who are performing the necessary duties by residing in the vicinity are relieved of the necessity of creeting a house on the homestead.

Appended is a statement of work during the fiscal year, the total revenue being \$154,183.62 against \$62,726.02 for the previous year.

Letters received	15,229
Letters sent	16,525
Applications for patent	677

Entries cancelled	665
Applications for inspection	510
Homestead entries	903
Pre-emption entries	506
Purchased homestead entries	46
Improvements	45
Land sales (cash)	38
South African Volunteer scrip	19
Pre-emption payments	700
Purchased homestead payments	152
Searches	.696
Timber permits	121
Hay permits	302
Grazing permits	9
Coal lands mining fee	24
Coal lands rental	21
Coal lands royalty	48
Seed grain payments	3
Total revenue	\$154,183.62

Your obedient servant,

R. CLAUD KISBEY,

Agent of Dominion Lands.

No. 10.

REPORT OF THE AGENT AT GRANDE PRAIRIE.

DEPARTMENT OF THE INTERIOR,

DOMINION LANDS AND CROWN TIMBER OFFICE,

GRANDE PRAIRIE, ALBERTA, April 9, 1912.

The Commissioner of Dominion Lands,
Department of the Interior,
Ottawa, Ont.

SIR,—I have the honour to submit herewith my report of the work of this office for the fiscal year ending March 31, 1912.

This agency comprises what was formerly the western portion of the Peace River district, and the office was first opened on July 15, 1911. For a short time business was carried on in the house of a homesteader, Mr. John Wilson, whose land adjoins the townsite of Grande Prairie, but the office was afterwards moved to the present building on the townsite, a more suitable and convenient place both for the staff and for the public.

The opening of the office here has proved a great boon to the settlers coming in to the Grande Prairie country, as it saves them the necessity of making the long and hard trip to Grouard to file their entries and in many other ways makes the business of homesteading much easier and better for them as well as for the Department.

Last summer proved to be an exceptionally wet and rainy one, but, notwithstanding the fact that the Edson trail, the shortest route to the Prairie, was almost impass-

able until well on into the fall, many new settlers came in to locate, particularly those who had purchased South African volunteer bounty scrip.

In spite of the unusually heavy rains, the crops everywhere on the Prairie turned out well, oats, the principal crop, yielding from 80 to 100 bushels per acre and of very fair quality. Naturally in such a newly settled country there is not a great area of land under cultivation, but the coming year will see a great change in this respect; and such cultivation as has been done has clearly proven that the soil of Grande Prairie is unsurpassed for the raising of grain, roots and vegetables.

The one real need of the country is railroad connection with outside points; once this is obtained the cost of living will be reduced to ordinary rates, the settlers will have a market for their produce and the district will grow at a wonderful rate.

The past winter has been a most delightful one; no storms and but three short cold spells of only three or four days duration. There was just enough snow for good sleighing, and this gave the settlers an opportunity to freight in their yearly supply of food, &c. Numbers of new settlers also took advantage of the sleighing to bring in complete outfits, and now that the snow has all gone and their homesteads are located, they are ready to commence work on the land.

Judging from the number of letters received at this office inquiring about this country and from reports brought in by settlers, this spring will see a great influx of homesteaders to the Grand Prairie. A number of these will doubtless turn back when confronted with the difficulties to be encountered on the trail and by the very high prices charged on the Prairie for necessary items of food and clothing, but the best of them will persevere and join with the older settlers, who have been through the same trials, in boosting the country and fighting for proper railroad facilities.

Appended hereto is a statement of work performed in this office during the nine months ending March 31, 1912.

Your obedient servant,

A. B. MACLEAN,
Agent of Dominion Lands.

STATEMENT of work performed at the Grande Prairie Dominion Lands Agency for the nine months ending March 31, 1912.

Patent Branch—	
Homestead fees	\$4,910 00
Improvements	966 00
Land sales 23	1,154 33
Searches, &c	5 45
Applications for patent 4	
Applications for inspection	
Entries cancelled	
South African bounty scrip 157	
Half-breed scrip	
Total Dominion lands	\$7,035 78
Timber, Grazing and Irrigation—	
• Timber permits	\$ 5 50
Hay permits	155 20
Sundries	12 50
Total timber, grazing and irrigation	\$ 173 20

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Mining Lands and Yukon Branch—		
Mining fees 1	\$	5 00
Total mining lands and Yukon	.\$	5 0 0
School Lands Branch—		
Hay permits	\$	20 89
Grazing rentals	_	117 35
Total school lands	\$	138 15
General—		
Letters received		
Letters written		
Grand total	\$7	,352 13

No. 11.

REPORT OF THE AGENT AT GROUARD.

Department of the Interior,
Dominion Lands and Crown Timber Office,
Grouard, Alberta, April 16, 1912.

J. W. GREENWAY, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

SR,—I have the honour to submit herewith the annual report of the Peace River agency for the fiscal year ending March 31, 1912.

As usual for this part of Northern Alberta the work performed shows very gratifying results.

Below are figures giving a favourable comparison between the present year and the year ending March 31, 1911.

,		12 months ending March 31, 1912.	12 months ending March 31, 1911.
Homestead entries	٠.	. 452	291
South African scrip		. 136	103
Entries cancelled		. 33	35
Letters received		. 2,590	2,743
Letters written		. 1,933	1,752
Total revenue		. \$6,960.67	\$4,316.69

The coming year promises to be an excellent one. News about a great influx of immigration to the Peace River district is spreading very rapidly, and we are receiving letters from all over the continent and many parts of Europe inquiring about the Peace River country and its possibilities.

Your obedient servant,

A. C. LARIVIERE,

Agent of Dominion Lands.

No. 12.

REPORT OF THE AGENT AT HUMBOLDT.

Department of the Interior,

Dominion Lands and Crown Timber Office,

Humboldt, Saskatchewan, April 1, 1912.

The Commissioner of Dominion Lands, Ottawa, Ont.

SIR,—I beg to submit the annual report of the Humboldt Dominion Land Agency for the year ending March 31, 1912.

A slightly increased number of homesteads were granted this year over the preceding one, the South African scrip entries were nearly doubled, while entries cancelled showed a decrease from those of the former year. The figures are as follows:—

	1910-11.	1911-12.
Homesteads	1,739	1,762
South African Volunteer scrip ,	47	78
Cancellations	656	

The total receipts for the year amounted to \$28,578.

During the year, owing to our congested space, a rearrangement of our filing system had to be carried out, whereby the files of the patented lands were separated from the unpatented. This entailed a great amount of overtime work for the whole of the staff, but gave a very considerable additional space, which was badly required.

I am very pleased to be able to state that the new building for post office, customs house and Dominion Lands office is being proceeded with very satisfactorily, and I trust that before winter comes around, the Dominion Lands office will be in more suit-

able quarters, as the present building is entirely too small.

The past year was remarkable in many respects. A very promising season tapered off into a wet, late harvest. Threshing was delayed in many places till after the snow fell and the transportation companies, owing to the lateness of the season, could not avail themselves to the same extent as in former years of the assistance of the water route; and where in former years a third of the crop had been moved, only a start had been made in the year now passed. Traffic became congested, farmers were clamouring for cars and all lines of business felt the deleterious effects of the blockade. A feature to which to some considerable extent might be attributable this congestion of traffic, was the largely increased use of tractor engines in farm operations and, through their use, the consequent increase in cultivation. The railway companies did not appear to have estimated correctly and made provision for such an enormous increase. If this increase is as rapid this year, and it bids fair to be, unless means are adopted to minimize the effect, we shall have the same deplorable conditions the coming autumn. The transportation question still bulks very large in the west. It is a problem that the building of the Grand Trunk Pacific railway has not solved, and while the building of the Hudson Bay railway will help the situation, that will not suffice. It is impossible for the existing transportation companies to keep pace with the tremendous development and the cry of the west in the next few years will be 'more railways'. In the meantime statistics showing the area under cultivation the coming season should be carefully considered by the government and transportation companies, and provi-

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sion arranged as nearly as possible with regard to motive power and box cars to handle the approximated yield. The storage capacity throughout the country should also be carefully considered and efforts made to stimulate the building of elevators where required.

Appended is a statement of work performed during the year.

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

A. NORQUAY,
Agent of Dominion Lands.

Statement of work, year ending March 31, 1912:-

	Number
Homesteads	1,762
Applications for patent	1,268
South African volunteer scrips	78
Entries cancelled	481
Land sales	57
Searches	778
Applications for cancellation	549
Timber permits (Dominion lands)	195
Timber seizures	1
Timber permit excess dues	150
Hay permit "	11
Hay permits (School lands)	283
Grazing permits "	66
Timber permit excess dues	1
Timber permit " excess dues	10
Seed grain repayments	14
Letters received	21,193
Letters written	24,374
Number of staff	8
Salaries \$7.415 53 .	
Contingent expenditures 1.228 54 .	

No. 13.

REPORT OF THE AGENT AT KAMLOOPS.

DEPARTMENT OF THE INTERIOR,

DOMINION LANDS AND CROWN TIMBER OFFICE,

KAMLOOPS, B.C., April 15, 1912.

J. W. GREENWAY, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

Sir,—I have the honour to submit my annual report for the fiscal year ending March 31, 1912. The year just completed has proved a most successful one, in spite of the fact that the major portion of the area comprising my district is still held

under the general reservation which was placed upon it in the month of June, 1909.

Many additional squatters are locating upon the lands, surveyed and unsurveyed, in the reserved territory, thus making the situation a more difficult and complicated one to settle. The general revenue from the agency shows an increase of 54 per cent over the corresponding period of the previous year.

The past winter, which was rather more prolonged than usual, was nevertheless an excellent one, although there were several cold spells. The snowfall was abnormal, necessitating considerable feeding of stock, but the cattle and horses have come through splendidly, and I have much pleasure in reporting very few losses, some of the cattlemen averaging a loss of about 3 per cent. The exceptionally heavy fall of snow, which has remained on the ground almost to date, practically assures good crops for this season.

The settlers coming into the district have been of an excellent class and they appear satisfied with the conditions existing.

While there are still excellent homesteads to be secured in the Kamloops division, the bulk of the best land therein has already been disposed of. From a perusal of the maps issued by the department, showing considerable vacant land, one would imagine that there is much land yet to be secured, but such is not the case, as much of it is high, mountainous country, totally unsuitable for anything but grazing. There are, however, large areas of semi-arid land, in the many valleys, unproductive to-day for the want of irrigation, and if means can be devised for the raising, by some cheap method, of water from the Thompson rivers, these valleys could be made most productive. The soil or silt is rich and only requires water to make it a great revenue producer. In my last report I referred to the mighty powers lying dormant in the waters of Adams lake, and again reiterate my opinion that the department would do well to thoroughly investigate the marvellous possibilities there, for the benefit of the many settlers in the South Thompson valley, who are at present severely handicapped for the want of water.

The year 1912 promises to be a phenomenal one in railway construction throughout the province. The construction of the Canadian Northern Pacific railway, and the contemplated branch line of the said company from Kamloops to the Okanagan valley via Armstrong, and the proposed line of the Canadian Pacific railway from Red Deer, Alberta, to connect with the main line at Kamloops, via Yellowhead Pass, have brought this city and district prominently before the public, and in all probability Kamloops will become a wholesale distributing point and manufacturing centre, especially in view of the proposal of the city authorities to use the water of the Barrier river for power purposes.

The general inquiries, particularly in person, for land within the Shuswap, Upper Columbia and Lower Columbia divisions, part of my district, but held under reservation, have been exceedingly heavy, and the proposed reduction in the area to be granted under homestead entry would appear to be highly satisfactory to all except the interested squatters, many of whom, however, in view of their length of residence and improvements, made prior to the date of the general reservation, should receive special consideration for their claim to 160 acres.

The cities and towns throughout my district are growing rapidly and, being peopled by an industrious and optimistic class, are making wonderful progress, building operations showing great development, especially in the city of Kamloops.

The decision to complete the construction of the Kootenay Central railway down the Columbia valley from Cranbrook to Golden has caused a flutter in real estate in Golden, and in consequence of the railway development at this point, I have during the past year sold in the townsites of Golden, north and south, some ninety-nine lots, all sales carrying building conditions.

The homestead inspection work is steadily increasing and when the general reserve has been withdrawn, and the new regulations come into effect, I will undoubt-

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edly require the services of a suitable and thoroughly competent man to assist in this important work.

The work of the agency is in excellent condition, and I cannot close this short report without making special mention of the hearty support and co-operation of each individual member of my staff.

Appended is a summary of the work performed at this agency during the fiscal year ending March 31, 1912.

Patent Branch—		r
Homesteads	288	\$ 2,880 00
Improvements	54	1,539 00
Land sales	52	8,765 33
Townsite sales	53	2,407 67
Searches, &c	158	95 50
Applications for patent	115	
Applications for inspection	71	
Entries cancelled	53	
		\$15,687 50
Timber, Grazing, &c.—		
Bonus	3	\$ 4,288 03
Ground rent	92	6,871 74
Royalty	49	25,602 56
Timber permits	180	2,446 73
Timber seizures	5	445 94
Hay permits	14	41 92
Grazing rents	349	7,200 44
		\$46,897 36
Mining Lands and Yukon Branch-		
Mining fees	21	\$ 200 00
Rental	19	678 80
		\$ 878 80
Total		\$63,463 66
Total for previous year		
Increase		\$22,374 31
Letters received	0,806	
I am. sir.		

I am, sir, Your obedient servant,

W. C. COWELL,

Agent of Dominion Lands.

No. 14.

REPORT OF THE AGENT AT LETHBRIDGE.

DEPARTMENT OF THE INTERIOR,

DOMINION LANDS AND CROWN TIMBER OFFICE,

LETHBRIDGE, ALBERTA, April 9, 1912.

J. W. GREENWAY, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

SIR,—I have the honour to submit for your consideration this office annual report for the year ending March 31, 1912.

The business transacted this year while not so heavy as in previous years shows a considerable increase over that of last year. Very few homesteads have been granted in comparison to other years owing to the fact that homestead land within this district is practically exhausted.

Settlers are still pouring into this country, many of whom are in search of suitable land for farming purposes, and on May 1 next, three townships of land will be placed on the market.

In order to show the demand for this land I may state that at the present time there are in the neighbourhood of seventy-five persons lined up around the office. These parties intend remaining in line during this month in order to be first on hand on the opening morning.

A large number of applications for patent have been handled, and correspondence has also been quite heavy. The sub-agents and homestead inspectors deserve credit for the manner in which they have performed their departmental duties. The staff has worked faithfully, and is worthy of special mention.

I submit a list of the work performed during the past year:-

	Number.
TT 1	
Homesteads	568
Pre-emptions	160
Purchased homesteads	23
Improvements	175
Land sales	77
Pre-emption payments	1,137
Purchased homestead payments	132
Searches, &c	310
Applications for patent received	1,388
Entries cancelled	574
Sundries	1
Timber permits	125
Timber seizures	1
Hay permits	. 12
Grazing rentals	S1
Letters received	30,099
Letters written	23,283
Numler of staff	8

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The total revenue collected for the fiscal year of 1911-12 through this office is

\$221,116.21, being an increase of \$72,612.84 over the revenue of last year.

Owing to the wet weather during the harvest season of last year the crops did not yield what was expected, but with the moisture on hand at the present time, and early opening of spring, it is expected that this year will produce one of the largest crops raised in the west.

Your obedient servant,

J. W. STAFFORD,

Agent of Dominion Lands.

No. 15.

REPORT OF THE AGENT AT MEDICINE HAT.

DEPARTMENT OF THE INTERIOR,

DOMINION LANDS AND CROWN TIMBER OFFICE,

MEDICINE HAT, ALBERTA, April 3, 1912.

J. W. GREENWAY, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

SIR,—I have the honour to submit for your consideration the annual report of this office for the fiscal year ending March 31, 1912.

The business of this office has increased very much during the past year compared to the preceding one, as shown by the accompanying statement for 1910-11 and 1911-19.

The past year has not been as favourable for farming in this district as could be wished. It opened well under the very best conditions, the rains being plentiful in June, but the continual wet weather in August and September kept the crops growing so that they did not ripen before the frost had reduced the value of the crop from No. 1 Northern to No. 4 or feed grain.

The early frost and snow in September, October and November prevented farmers from stacking and threshing, and at the present time a large quantity of grain is still

in stook waiting to be threshed.

The winter has been severe in this district, as it has been all over America and Europe. Stockmen have suffered some losses and the end is not yet as the feed has run short in places and the prairie grass did not cure as well as usual. Another drawback to the feed was that the snow thawed, formed ice on the prairie and the snow falling afterwards formed a crust that cattle could not break and the horses got thin pawing for the dry feed.

With these drawbacks we have not been worse off than other districts in this country and the United States. Our advices from intending settlers say that the winter has been an exceedingly hard one in Montana, North and South Dakota,

Missouri, Idaho, Nebraska and other Western States.

From numerous inquiries from all the Northern States received at this office, asking for information, it looks as if there would be a larger immigration into this district the coming season. The class of settlers that arrived the last year was a very good one, both from Europe and the United States, and these settlers promise to make this country a prosperous and flourishing part of the Dominion of Canada.

The arrivals from the United States have already started to come in and a considerable number appear at this office from day to day to make application for homesteads and pre-emptions.

Railways are badly needed, many settlers being obliged to haul their produce as much as eighty and a hundred miles to market, but this season there are three lines to be constructed: the Canadian Pacific railway, Weyburn-Lethbridge branch, the Canadian Northern, and the Grand Trunk Pacific to Medicine Hat. These will afford relief to a large part of the district and to many settlers. The coming of the two latter roads to Medicine Hat promises to add to the prosperity of the city by bringing a number of new industries in, attracted by the abundant supply of cheap fuel in the shape of natural gas, besides giving adequate railway facilities for handling a large business.

The members of the office staff have given me most loyal support during my time in this office.

Your obedient servant,

GEO. H. MACDONELL,

Agent of Dominion Lands.

STATEMENT of the business transacted at the Medicine Hat Dominion Lands and Crown Timber Agency for the year ending March 31, 1912, and comparative statement for year ending March 31, 1911:—

	1911.	1912.
Patent Branch—	\$ cts.	\$ ets.
Homestead fees. Pre-emption fees. Purchased homestead fees. Improvements. Land sales—cash	$\begin{array}{c} 37,340 \ 00 \\ 26,110 \ 00 \\ 920 \ 00 \\ 9,779 \ 55 \\ 11,074 \ 62 \end{array}$	$\begin{array}{c} 28,420\ 00 \\ 18,010\ 00 \\ 1,210\ 00 \\ 15,403\ 55 \\ 344,773\ 83 \end{array}$
Pre-emption payments Purchased homestead payments. Searches, map sales, office fees, &c. Sundries—patent fee	36,583 87 19,286 85 59 25 30 00	640 00 78,866 36 28,604 79 80 00
Total	141,184 14	516,008 53
Timber, grazing and irrigation—		
Timber permits Grazing Forestry	293 45 26 25	201 90 55 10
Hay permits	511 40 7,085 92	651 00 13,641 15 1,520 00
Sundries, registration irrigation fees.	6 00	75 47
Total	9,923 02	16,089 52
Mining Lands and Yukon Branch— Mining fees		365 00
RentalRoyalty	520 00	5 00 2,655 12 402 96
Total	2,130 20	3,428 08
School Lands Branch— General sales Hay permits.		5,957 82 125 55
Coal rental. Grazing permits. Mining fees.		. 40 00 766 09 35 00
Total	1,328 84	6,924 46
Miscellaneous— Seed grain repayments	1,067 50	5,078 55
Grand total	155,633 70	547,584 24

No. 16.

REPORT OF THE AGENT AT MOOSEJAW.

DEPARTMENT OF THE INTERIOR,

DOMINION LANDS AND CROWN TIMBER OFFICE,

MOOSEJAW, SASKATCHEWAN, April 4, 1912.

J. W. Greenway, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

Sir—In submitting my report of this agency for the fiscal year ending March 31, 1912, I beg to say that only having taken charge of this office on November 11 last, I am not in a position to make a very extensive report.

Upon comparing the present report with that of last year, you will notice a falling off in the number of entries. This, I think, is due principally to the fact that available land suitable for farming is fast becoming scarce. As an indication of this I might say that the majority of entries now being made are as the result of cancellation.

Owing to the large number of payments which became due on pre-emptions and purchased homesteads the revenue for the last year increased \$103,169,37 over that of the previous year. It has been very difficult for a great many to meet these paymnts and there are at the present time a great many who are in arrears in this regard. The chief reason for this, I think, can be attributed to the fact that a large number have not been able to get their last year's crop threshed. It is reported from nearly every part of this district that a great many crops are still in stock. In other cases many of the settlers are storing their grain until such time as the railroad reaches this district. The action of the Department in discontinuing the accepting of applications for cancellation for non-payment of monies due relieved the settlers of a great deal of anxiety.

A marked increase has been noted in the number of applications received for coal mining leases, the majority of which applications cover lands situated forty or fifty miles south of this city. At the present time there are large mines which have been extensively equipped with machinery and which will be ready to start operation as soon as the railroad supplies them with proper facilities to market coal. This road, I understand, will be completed this season and will fill a long-felt want. I might say that the coal is of very good quality, being something similar to the Galt coal. From information received the present indications are that the time is not far distant when coal mining will be one of the chief industries in the southern part of this district.

Competition for land is very strong and it is no uncommon occurrence for numbers to sit at the office door anywhere from one to ten days in order to secure land coming open.

Numerous inquiries are received from intending settlers, and these are carefully answered and the fullest information regarding the district given. The number of applications for patent received has greatly increased and it has generally been found that the duties have been performed in a very satisfactory manner. Settlers performing their duties on land in the vicinity, being relieved of the necessity of building a \$300 house, have been able to make application for patent whereas under the old ruling they would not have been in a position to do so financially.

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Patent Branch-

25-i-3

The protection until April 1 afforded by the government was greatly appreciated and was taken advantage of by a great majority of the settlers in this district.

No complaints have been received of ill-attention or lack of courtesy on the part of any one on the staff, and a great deal of credit is due to them for the manner in which the work in general has been handled.

Your obedient servant,

G. II. SMITH. Acting Agent of Dominion Lands.

Statement of the business transacted at the Moosejaw Dominion Lands and Crown Timber Agency for 12 months ending March, 1912:-

Patent Branch—	27 1	D
TT	Number.	Revenue.
Homestead fees	4,087	\$ 40,870 00
Pre-emption fees	2,225	22,250 00
Purchased homestead fees	199	1,990 00
Improvements	317	25,063 60
Land sales cash	29	1,262 31
Pre-emption payments	2,070	157,230 69
Purchased homestead payments	538	55,708 47
Searches, office fees, &c	856	213 50
Applications for patent received	1,910	
Applications for inspection received	2,192	
Entries cancelled	3,419	
Sundries—scrip	187	
		\$304,588 57
Timber, Grazing and Irrigation—		
Timber permits	1,769	\$ 475 40
Hay permits	335	984 40
Grazing rentals cash	72	1,993 54
Sundries	16	18 95
State of the state	10	
		\$3,472 29
Mining Lands and Yukon Branch—		
Mining fees	27	135 00
Rental	17	461 40
Royalty	16	228 75
Sundries—prospectors' fees	3	205 60
prospersor 200000 000000000000000000000000000000		
		\$1,030 15
School Lands Branch—		
Hay permits	384	_ 1,098 70
Grazing rentals	31	380 67
Coal rental	1	20 00
		\$1,499 37
Miscellaneous—		, -, - · · · · ·
Seed grain and provision repayments	28	1,581 50
ceed grain and provision repayments	40	1,001 00
Grand Total		.\$312,171 88

General-

Letters	received	 	 				 	69,	415	٠.		
Letters	written.	 		 			 	59,	761		 .	
Salarie	3	 	 			 		 			\$20,980	77
Disburs	ements.	 									2,093	70

No. 17.

REPORT OF THE AGENT AT NEW WESTMINSTER.

DEPARTMENT OF THE INTERIOR,

DOMINION LANDS AND CROWN TIMBER OFFICE,

NEW WESTMINSTER, B.C., April 1, 1912.

The Commissioner of Dominion Lands, Ottawa, Ont.

SIR,—I have the honour to submit the annual report of this agency for the fiscal year ending March 31, 1912.

During the past year we have been unable to deal with homestead entries in a general way, on account of the reservation covering the whole of this district, but in all cases where it was found, after inspection was made, that squatters were in possession of the land and the lands were available for homestead entry prior to the general reservation, entries have been granted.

In connection with the inspection work, I have visited nearly every settlement in the district and have travelled 5,812 miles by rail, boat and wagon and made 296 inspections during the year.

The total revenue of this Agency excluding some large payments made direct to the department, shows an increase of 100 per cent over the previous year. This is due largely to the activity in leases of lands where indications of coal have been found.

The general prosperity of this district which has been in evidence for some years, still continues and the present year is expected to surpass even the most optimistic anticipations.

Appended is a statement of the work performed at this agency:—

Homestead entries granted	33
Land sales	7
Townsite sales	28
Searches, &c	125
Applications for patent received	24
Applications for inspection received	7
Entries cancelled	6
Applications mining lands	50
Sand, stone and gravel permits	10
Letters received	2,622
Letters written	2,009
Total receipts\$1	4,536 98
	7,159 59
Increase \$	7.377 39

Your obedient servant,

W. D. MAGEE, Acting Agent of Dominion Lands.

No. 18.

REPORT OF THE AGENT AT PRINCE ALBERT.

Department of the Interior,

Dominion Lands and Crown Timber Office,

Prince Albert, Saskatchewan, June 10, 1912.

J. W. GREENWAY, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

SIR,—I have the honour to submit herewith for your consideration, the annual report of this office for the fiscal year ending March 31, 1912.

Schedule 'A.' gives a summary of the work performed and the revenue collected during the year, showing in the total the increase or decrease as compared with the previous year.

Schedule 'B.' shows the revenue collected in connection with the School Lands

Branch of this agency.

The total revenue collected appears as \$89,991.44 as against \$80,170.78 for the previous year, being an increase of \$9,820.66.

The number of homestead entries granted during the year just closed shows an

increase over the previous year of 234.

The lumber manufactured under license during the year just closed shows as 77,469,595 feet, being an increase over the previous year of 43,524,790 feet B.M.

This is more than double the quantity of lumber manufactured during 1910-11.

The general office work in connection with this agency and sub-agencies tributary thereto, is in a satisfactory condition. The service rendered by the different members of the staff has been generally satisfactory.

A decided increase in the number of settlers going in for mixed farming is each year more in evidence. The land in the Prince Albert land district is particularly adapted for mixed farming. I anticipate a heavy increase of homestead entries during the coming year.

Hereto appended is a statement of the work transacted at this agency during the fiscal year ending March 31, 1912, as follows:—

Number of letters received	23,031
	29,118
Number of homestead entries	2,096
Total receipts \$89	991.44

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

W. S. McKECHNIE,

Agent of Dominion Lands and Crown Timber Agent.

3 GEORGE V A

SCHEDULE A.—DOMINION LANDS.

STATEMENT of the business transacted at the Prince Albert Dominion Lands and Crown Timber Agency for the year ending March 3I, 1912, and comparative statements for former periods, as shown below.

						3 GEORGE V., A. 1	1913
previou	Totals.	cts.	1		115 30		1,810 09
Decrease as compared with previou year.	Amount.	& cts.	10 00 10 00 10 00 48 15	15 55		1,400 n0 410 09	
as com	No.		-41 :::0		•	9	
previous	Totals.	& cts.			5,206 21		7,053 97
Increase as compared with previous year.	Amount.	.≉ cts.	2,400 (00 429 53 1,028 17 1,348 51			2,211 61 4,053 43 467 65 304 45	
as com	No.		234 14 1	G1 :		276	
riod for	Totals.	ete.		900	58,683 58,683		46,402 80
Corresponding period for previous year.	Amount.	& cts.	18,560 00 40 00 3,464 97 2,880 83 614 54	1 60		1,400 00 9,426 75 21,245 73 8,941 71 4,854 60 5,33 95	
Corres	No.		1,862	117 709 345 532 3	:	24 22 22 1,298 42 170	
ots for arch	Totals.	ets.		6	33,773 97		51,646 68
Work and receipts for year ending March 31, 1912.	Amount.	& cts.	20,560 00 30 00 3,894 50 3,909 00 1,963 05 2,935 37	32 05		9,016 66 23,457 40 12,995 14 5,322 25 838 40	
Worl	No.		2,096 1650 80 4 60 80 80 80 80 80 80 80 80 80 80 80 80 80	116 720 490 743 2	:	1,574 1,574 49 301	
		Patent Branch.	Homestead fees Pre-emption fees Purchased homestead fees Improvements Land sudes-cash Pre-emption payments Pre-emption payments Thomastic solas SAA Pt	Searches, map sales, office fees, &c Applications for patent received Applications for inspection received. Entries cancelled	Dominion lands, total	Bonns. Ground rent. Ground sent. Ground on sales Timber permits and dues. Timber seizures. Hay permits and dues. Grazing rentals—cash. "—scrip. Irrigation fees.	Timber dues, &c., total

S	ESS	1
	681 90 660 90	
	- 138	
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_		
	: :	
	749 00 993 70	
-	169	
_	68 96 333 70	
	217	
Mining Lands and Yukon Brunch.	lining fees.	

SESSIONAL	PAP	ER No.	25							
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681 00			-00 00 -11 12 20 -10 00 90 90 90 90 90 90 90 90 90 90 90 90	:	85 .				390 20	
<u> </u>				:				3,924		
	800 00			506 05			13,821 58			
800 00			365 50 140 55	:					285 10	
		21 00	25.22	:	6 :			6,536		
	1,742 70			2,458 65		883 57	80,170 78			9,802 46
749 00	4		40 06 272 50 278 50 288 60 194 85 1,630 30		883 57				8,862 94	
91 10 10 10 10 10 10 10 10 10 10 10 10 10	:		110000000000000000000000000000000000000	:	55			26,955 22,582	a g	
	1,201 70	35.5		2,312 28		Sul 46	89,991-44			9,697 36
833 70 800 00		255 35	645 00 408 55 113 73 1,065 00		801 46				8,472 74	
217		7.1	22.54.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.	:	24			23,031 29,118 average.	8,416	
Mining Coss. Mining Fors. Rental Royalty Royalty Assessment payments Coal permits Sindres.	M. L. and Y. Branch, total	Finber permits	School Lands Branch. General sales Timber permits & dues Hay permits & dues. Grazing rentals. Mining fees seizures Coal rental. " royalty. " permits. Cultivation permits.	School lands, total	Mixedansons. Seed grain and provision repayments Sundries.	Miseollaneous, total	Grand total	General. Letters received	Number of staff and salaries.	Total

W. S. McKECHNIE, Agent of Dominion Lands and Crown Timber Agent.

Schedule B.—Showing revenue from School Lands collected at Prince Albert Agency during Fiscal Year 1911-12.

Month.	Graz Renta			ay nits.	Tim Perm		Seizu	res.		ound ent.	Totals.	
1911.	\$	cts.	\$	cts.	8	cts.	\$	cts.	s	cts.	\$	cts.
April. May. June. July. August. September. October November. December	12 6	80 40	18	22 85 21 50 39 50 48 30 24 20 1 00 20 20	69	 		00			1,076 202 54 24 1	40 50 30 70 20 00 85 75
January. February. March. Totals.	29 28	08 06 14 73		50 30 08 55	207	3 50 7 25 0 75 0 00				25 00	2 36	89

No. 19.

REPORT OF THE AGENT AT RED DEER.

DEPARTMENT OF THE INTERIOR,
DOMINION LANDS AND CROWN TIMBER OFFICE,
RED DEER, ALBERTA, April 13, 1912.

J. W. GREENWAY, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

Sir,—In submitting my annual report for the fiscal year ending the 31st ultimo, I am pleased to say that this district has made satisfactory progress during the past twelve months.

The summer of 1911 will long be remembered by the settlers as the worst ever experienced in Alberta. In the earlier months of summer the prospects for a bountiful harvest were very encouraging, and a much larger area was sown to crop than in any previous year. The summer was very cool and wet. The growth of all crops was, however, phenomenal, and had we been blest with our usual sunshine and warm weather, the yield would have been the largest ever harvested in Alberta, or I presume, in any part of the world, of an equal area. Harvesting was greatly retarded by wet weather and an unusually early frost did much damage to the grain, more so in some districts than in others, but generally throughout Alberta. However, as has been previously mentioned, the Red Deer District is largely devoted to mixed farming, and owing to the extensive railway construction being carried on a ready market was furnished for such grain as was harvested, and for all farm produce, for which the highest prices were obtained. Owing to inclement weather and the early freeze up, very little fall ploughing was accomplished. The succeeding winter,

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however, was one of the finest, being entirely free from storms, and on the whole, mild, so much so that cattle and horses came through with little or no feeding, and in prime condition. Owing to the mild winter the frost did not sink deep into the ground, consequently spring work has started at least two weeks earlier than was the case last year. There will not be as much wheat sown this year in the older and more settled portions of the district as much of the land will be summer-fallowed, but this will be made up by the increase of cultivation by new settlers. The ground is now in excellent condition for the grain, there being ample moisture, and should nothing unforeseen occur the Red Deer District will harvest a bumper crop next fall.

The butter and cheese factories throughout the district have largely increased their output during the past season, have realized good prices, and are in a flourishing condition. The town of Red Deer has made wonderful progress during the past year, and the brick yards, lumber and flour mills, and other industries have doubled their capacities. A customs office has been opened in the town which will be found

a great convenience to the citizens and settlers in the neighbourhood.

The farmers of the Red Deer district are contented and happy in that every com-

modity they have to dispose of finds a ready market at good prices.

The merchants are happy and prosperous, as they can sell their wares at a fair profit for cash. The artisan is contented and happy as he can always find employment at wages commensurate with the cost of living, and is therefore able to support his family in comfort, but the man living on a salary, unless for a sympathetic employer, has nothing to make him either happy or contented, and I regret to say that, for this reason this office has been deprived of the services of a painstaking and efficient employee, in the person of Mr. T. M. Wright, whose resignation was forwarded you on the 2nd instant.

The revenue of this office has increased from \$17,754.15 in 1900 to \$91,296.28 this year, an increase of over 500 per cent, as is shown by the following summary:—

Patent Branch \$74,	588 16
Timber, grazing and irrigation	895 50
Mining Lands and Yukon	104 19
School lands 2.	176 32
Seed grain repayments	532 11
Total revenue \$91,	296 28
Letters received	
Letters written	

I am, sir,

Your obedient servant,

W. H. COTTINGHAM,

Agent of Dominion Lands.

No. 20.

REPORT OF THE AGENT AT REGINA.

Department of the Interior,

Dominion Lands and Crown Timber Office.

Regina, Saskatchewan, April 2, 1912.

J. W. Greenway, Esq., Commissioner of D

Commissioner of Dominion Lands, Ottawa, Ont.

Sir,—I have the honour to submit my report for the fiscal year ending March 31, 1912.

As was to be expected, there has been a considerable falling off of work in all lines in this office during the past year, owing to the small area of available lands and to the fact that a large proportion of the homesteaders in the district have received their patents.

The number of entries, however, does not by any means fairly represent the work

performed.

As Regina is one of the oldest offices in the country, we have a large number of land seekers calling here for information regarding other parts of the country, and where the best land is obtainable.

We also have a large number of inquiries from the States and Eastern Canada for general information as to western conditions. These inquiries are dealt with and the parties in every case given the fullest possible information.

On account of the heavy crops last season and the early snowfall, some of the farmers have not been able to thresh their grain, and unless we have the most favourable weather, a lot of grain now in the stook will be a total loss.

The weather is ideal for this season of the year, and prospects appear to be

good for the coming season.

Attached hereto is a comparative statement of receipts at this office for the years ending March 31, 1912, and March 31, 1911, respectively.

Your obedient servant,

J. R. GAYTON.

Agent of Dominion Lands.

Patent Branch—	1912.	1911.
Homestead fees	\$ 3,400 00	\$43,330 00
Pre-emption fees	130 00	190 00
Purchased homestead fees	110 00	100 00
Improvement payments	3,823 27	6.548 59
General sales	5,184 73	8,590 41
Pre-emption payments	3.796 20	411 48
Purchased homestead payments	6.774 77	3.623 34
Searches	134 50	151 24
Payments on colonization land	8.996 27	
Total	\$32,349 74	\$23,945 06

Timber, Grazing and Irrigation Branch-		
	1912.	1911.
Timber permits \$	5 75 \$	38 00
	130 00	68 70
Sundries	40	
		100 80
Total \$	136 95 \$	106 70
Mining Lands and Yukon Branch-		
Coal permits		10 00
School Lands Branch—		
General salės	.577 39 \$	1,037 38
	9 25	22 00
^	934 85	728 25
	513 36	641 00
Cultivation permits	3 00	
Sundries	13 90	
Total	.051 75 \$	2,428 63
Miscellaneous—		
See grain and provision payments \$	954 07 \$	1,728 64
Disbursements—		
	,459 59 \$	-,
Contingent expenses	463 17	492 62

No. 21.

Total.... \$ 5,922 76 \$ 6.788 84

REPORT OF THE AGENT AT SASKATOON.

Department of the Interior,

Dominion Lands and Crown Timber Office,

Saskatoon, Saskatchewan, April 12, 1912.

J. W. Greenway, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

Sir,—I have the honour to submit herewith my report of this office for the fiscal year ending March 31, 1912.

As will be seen from the appended summary, the volume of business shows a marked increase over the same period of last year, and indications point to still greater activity during the forthcoming twelve months.

While the available land in the near vicinity of Saskatoon is now practically all taken up, there is, nevertheless, a considerable area of homestead acreage open in this

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particular district, though at some little distance from this centre. This land is well adapted to mixed farming, and the experience of the farmers in many sections of the west during the past two years has been such that the settlers in this district are coming to realize the many advantages derived from this branch of agriculture, the result of which will undoubtedly be to much change the products raised at no distant date.

The year 1912 was a record one so far as yield is concerned in this district, and this, coupled with the great increase in the acreage sown to crop, resulted in a most remarkable volume of crop garnered.

The farmers were also fortunate in harvesting, threshing and marketing a considerable portion of their yield before the adverse conditions which affected many other districts were felt here, and the consequence was that only in a limited portion of the Saskatoon district was there any great loss from an unusually late harvest.

The class of homeseekers with which this office has done and is doing business promises well for the future of the agricultural interests in this particular section, a large percentage being well-to-do farmers from the American republic, with a generous sprinkling of experienced agriculturists from Great Britain and Germany, as well as a limited number from eastern Canada.

While an early winter prevented the usual volume of fall work, leaving much to be done in the way of preparatory labour for this year's seeding, the spring has opened most auspiciously in this section, and prospects are for an exceptionally good season and excellent yield for the harvest of 1912.

The extensive advertising which has been done by the city of Saskatoon, I find, has placed upon this office the duty of acting to a very great extent as an information bureau to an ever-increasing number of homeseekers, the result being that, while we have been called upon to respond to a very heavy stream of inquiries, much of the consequent business has necessarily found its way to many of the other district offices.

Splendid prices have prevailed during the year for all lines of farm produce, particularly in regard to what the farmer raises for the table, and the rapid growth of the towns and cities in this district has resulted in a market for the products of the mixed farmer that can scarcely be said to have been met by the agriculturists, while the prices obtainable for the same afford a most profitable return for the labour.

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

M. A. MACINNES,
Agent of Dominion Lands.

STATEMENT of business transacted at the Saskatoon Dominion Lands Agency, for the year ending March 31, 1912.

Patent Branch—	Number.	Revenue.
Homestead entries	2,965	\$29,630 00
Pre-emption entries	879	8,780 00
Purchased homestead entries	425	4,230 00
Improvements	307	21,672 87
Land sales (cash)		5,455 85
South African Volunteer bounty land scrip		
Northwest Half-breed land scrip		
Pre-emption payments	900	86,497 21
Purchased homestead payments	1,200	128,906 82
Searches	1,201	300 75
Sundries	. 3	6 25

\$285,479 75

Timber, Grazing and Irrigation— Timber permits. Hay permits. Sundries.	288	. Revenue. 28 75 699 40 19 90
Mining Lands and Yukon Branch—		\$748 05
Mining fees	4	35 00 1,020 00 26 00
School Lands Branch—		\$1,081 00
Hay permits		777 85 25
Grazing rentals	14	160 00 12 10
		\$950 20
Miscellaneous—		
Seed grain collections	. 16	955 90
Total revenue		\$289,214 90
Letters received. Letters written. Applications for inspection received. Applications for patent received. Entries cancelled.		51,158 1,482 2,082

No. 22.

REPORT OF THE AGENT AT SWIFT CURRENT.

Department of the Interior,
Dominion Lands and Crown Timber Office,
Swift Current, Saskatchewan, April 2, 1912.

J. W. GREENWAY, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

SIR,—I have the honour to submit for your consideration the following report on the general work and conditions of this district for the past fiscal year:—

The recently closed year has been another prosperous one for the locality. Speaking of the district as a whole the crops were very good, the yield heavy, samples of grain good and the prices derived therefrom larger than in the majority of former years. In many instances loss was occasioned through hail, frost or dryness, but percentage of such was small.

The class of settlers in this district is of sound type, hailing, for the most part, from Great Britain and the United States. The majority are experienced farmers

and come fairly well provided with machinery, stock and funds.

The seed grain distributed last season was greatly appreciated and few failed to take advantage of the offer of the government in this direction. At this point only two complaints were heard as to the quality of seed supplied and these cases were rectified by the Assistant Commissioner of Immigration, Mr. Gelly. The demand for seed grain for the approaching season appears to be less than in the spring of 1911, the explanation of this being due to the fact that the majority retained sufficient of last year's yield to supply seed for the present need.

During 1911 the Canadian Pacific railway constructed two branches running northwest and southeast. These lines traversed the older settled portions of the district, enabling a large amount of the grain to be shipped to an early market. This year it is the intention of the railway company to extend these two branches for a further distance of 50 or 60 miles, which, when completed, will afford transportation to most of the outlying points. Thriving little towns are appearing along the lines mentioned and before long elevators will be built, thereby giving a near market for grain grown this year.

The number of patents applied for has been very large. The evidence furnished in connection therewith tends to show that the older settlers have performed the

requisite duties in a faithful manner.

The correspondence handled at this office has been extensive and the demand for literature and information very noticeable. Inquiries have been received from all quarters of the American continent and Europe.

The staff, including homestead inspectors and sub-agents, have worked carefully

and well throughout the year and I cannot speak too highly of my assistants.

Accompanying this is a statement of the work attended to at this office during the twelve months ending March 31, 1912.

Respectfully submitted.

E. B. R. PRAGNELL.

Agent of Dominion Lands.

Statement of work at Dominion Land Office, Swift Current, during the twelve months ending March 31, 1912:—

Homestead entries
Pre-emption entries
Purchased homesteads
South African volunteer bounty scrip
Northwest Half-breed scrip
Red River scrip
The revenue from the various sources in this district was as follows:—
Homestead entries\$ 34,530 00
Pre-emption entries
Purchased homestead entries
Improvements
Land sales
Preemeption payments
Purchased homesteads
Searches, &c
Sundries
Timber, grazing and irrigation 2,942 96
Timber, grazing and hirganon

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Mining Lands and Yukon Branch	. 705	17
School Lands Branch	1,298	37
Seed grain, &c	1,761	87
•		
	AAAA * AA	00

\$262,560 93

In addition to the above there were 1,207 applications for patent received, and dealt with, also 1,670 applications for cancellation received, and 2,280 entries cancelled. The number of letters received and written were 34,251 and 41,900 respectively.

No. 23.

REPORT OF THE AGENT AT WINNIPEG.

DEPARTMENT OF THE INTERIOR,

DOMINION LANDS AND CROWN TIMBER OFFICE,

WINNIPEG, MANITOBA, April 18, 1912.

J. W. GREENWAY, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

SIR,—I have the honour to submit herewith the report in connection with the

Dominion Lands Office, Winnipeg, for the year ending March 31 last.

The attached summary shows the amount of revenue collected, and work performed under the different headings. In comparing this statement with that of the previous year, a considerable increase is shown. The opening up of new townships has increased the entries for homesteads, and also made the counter work much heavier. Information which I have received from different sources points to the fact that there is a large area of good agricultural land in the district covered by this agency, which has not as yet been opened for entry, but, as soon as it becomes available, will be entered for. This is shown by the large number of inquiries that are being received regarding these townships.

Intending settlers are given all the information at hand regarding the conditions of the country; this also applies to letters of inquiry, which are received in large

numbers, literature and other information being sent in reply.

At the present time there are bright prospects for a prosperous year. Seeding has already begun and a feeling of hopefulness is abroad through the country.

Appended is a statement of the work performed and revenue received for the fiscal year.

Your obedient servant.

L. RANKIN.
Agent of Dominion Lands.

Land Branch-

Homestead entries	2,097	\$20,930 00
Improvements	132	5,256 15
Land sales—cash	63	13,274 96
Townsite sales	25	776 12
Searches, maps, &c	667	529 50
Seed grain	52	3,838 13

Mines Branch-

46

Mining fees. Rental. Quarries. Assessment payments. Sale. Sundries. Petroleum.	103 85 97 7 1 39	\$ 609 91 2,374 85 758 85 700 00 57 50 117 00 5 00	\$ 4,623 11
Applications for patents received Applications for inspections received Entries cancelled Letters received Letters written	••••		367 619 896 19,480

No. 24.

REPORT OF THE AGENT AT YORKTON.

DEPARTMENT OF THE INTERIOR,

DOMINION LANDS AND CROWN TIMBER OFFICE,

YORKTON, SASKATCHEWAN, May 18, 1912.

The Commissioner of Dominion Lands, Ottawa.

SIR,-I have the honour to submit herewith report of the transactions of this office

for the year ending March 31, 1912.

There is a slight decrease in the number of homestead entries, and an increase in the total revenue. Crops in 1911 were good, but a considerable amount was lost owing to the early snow storm. Threshing operations were late, and very difficult, on account of snow. Prices were fair and business in general was good. Seeding this spring has been somewhat delayed owing to wet weather, but conditions look better at the present time although the acreage may be slightly less than last year.

The following is a summary of the work transacted:-

Homestead entries	1,266
Hay permits on Dominion Lands	106
Hay permits on School Lands	136
Applications for patent	1,628
Entries cancelled	
Applications for inspection	577
Letters written	22,768
Letters received	23,077

Your obedient servant,

J. A. DUNCAN,

Agent of Dominion Lands.

No. 25.

REPORT OF THE MINING LANDS AND YUKON BRANCH.

DEPARTMENT OF THE INTERIOR, OTTAWA, June 17, 1912.

W. W. Cory, Esq., C.M.G., Deputy Minister of the Interior, Ottawa.

SIR,—I have the honour to submit herewith the report of the Mining Lands and Yukon Branch of the Department of the Interior for the fiscal year which ended on March 31, 1912.

The total revenue of this branch derived from all sources during the fiscal year amounts to \$787,128.15. The statements lettered 'A.' and 'B.', showing in different forms how this amount is made up, will be found at the end of the report. Statement lettered 'A.' shows the total revenue for each month, and statement lettered 'B.' shows the revenue collected at each agency, including the Yukon Territory.

The revenue for the Yukon Territory, which amounts to \$234,497.66, is shown

separately in statement lettered 'C.'

The reports and statements for the fiscal year from the Commissioner, the Gold Commissioner, the Comptroller, the Crown Timber and Land Agent and the Director of Surveys at Dawson, and the Assistant Gold Commissioner at Whitehorse will be found under Numbers 25a. to 25f. of this report.

TIMBER IN THE YUKON TERRITORY.

The amount of dues collected on account of timber in the Yukon Territory during the fiscal year was \$18,271.69. During the year 123 permits were issued, under the authority of which 50,000 feet B.M. of timber, and 1,149½ cords of wood were cut.

The dues collected on permits issued amounted to \$9,945.55.

There are in existence 108 timber berths held under license to cut timber within the territory, covering an area of 259.86 square miles, which licenses were granted prior to May 10, 1906, on which date the regulations governing the granting of licenses to cut such timber in the territory were rescinded, and regulations for the issue of permits to cut timber substituted therefor. Only one sawmill is now in operation within the territory.

According to the returns received in the department the number of feet, board measure, of lumber manufactured during the year was 534,449 and the quantity sold 909,449 feet. The number of cords of wood cut during the year was 11,491½ and the number sold 8,404. Seizure dues amounting to \$974 were collected on cordwood cut in trespass. This does not include the very large amount of timber and

cordwood cut free of dues for mining purposes.

MINING LANDS OTHER THAN COAL.

During the fiscal year 97 entries for quartz mining claims were granted by the agents of Dominion lands in Manitoba, Saskatchewan and Alberta.

In the Yukon Territory 41,599 placer mining claims, 10,605 quartz mining claims,

and 79,017 renewals and relocations were recorded up to March 31, 1912.

According to the returns received during the fiscal year, 1,425 entries for placer mining claims, 219 entries for quartz mining claims, and 4,394 renewals and relocations were recorded during that period. The revenue collected from these sources and from fees for registering documents in connection with mining operations was \$74,974.92.

ROYALTY ON GOLD MINED IN THE YUKON TERRITORY.

The total amount collected up to March 31, 1912, for royalty on the gross output of placer mining claims in the Yukon Territory, after deducting the exemption at one time allowed under the regulations, was \$3,998,265.73, of which amount \$100,606.29 was collected during the last fiscal year. For the purpose of estimating this royalty, the gold is valued at \$15 an ounce, which is much below its real value.

The actual value of gold produced from placer mining operations in the Yukon

Territory up to March 31 last might be safely placed at \$120,271,333.

The following statement shows the agencies at which the royalty was collected and the amount collected at each during the year:—

Dawson																	64
Whitehorse.																555	90
Fortymile		٠	٠			,											75

The statement lettered 'E.' at the end of this report shows the total gold production, the total subject to royalty and the total royalty collected for each fiscal year from May 1, 1898, to March 31, 1912.

DREDGING.

Forty-five leases to dredge for minerals, other than coal, in the submerged beds of rivers in the Yukon Territory are now in force, covering a total frontage of 210.65 miles. The total revenue derived from this source up to March 31, 1912, amounts to \$187,581.31, of which amount \$2,860.96 was collected during the fiscal year.

These leases are confined to the Yukon, Stewart, McQuesten, Fortymile, Big

Salmon, Klondike, Hootalingua and Mayo rivers.

There are in operation in the Yukon Territory fourteen dredges, nearly all of which have an indicated capacity of 3,500 cubic yards in twenty-four hours. The Canadian Klondike Mining Company have installed on their property situated on the Klondike river, what is reported to be the largest gold-saving dredge operating in the world.

Twenty-eight leases to dredge for minerals in the beds of rivers in the provinces of Alberta and Saskatchewan are in force, covering a total frontage of 114.51 miles. Of these leases twenty-one are in the province of Alberta, and include 89 miles, seven are in the province of Saskatchewan, and include 35 miles in all, and three are in the Northwest Territories, embracing a frontage of 11 miles. The total revenue derived from this source up to March 31, 1912, amounts to \$44,233.05, of which amount \$1,160 was collected during the fiscal year.

HYDRAULIC MINING.

The regulations for the disposal of mining locations in the Yukon Territory to be worked by the hydraulic mining process were withdrawn by Order in Council, dated February 2, 1904, such withdrawal, however, not to affect leases already granted.

Ten hydraulic mining leases are still in force, covering a frontage of 28.73 miles. These leaseholds are all situated in the Yukon Territory. Since the regulations were first established in December, 1898, forty-seven hydraulic mining leases have been issued, all of which have now been cancelled with the exception of the above number.

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Under the grouping provisions of the Placer Mining Act, operators can now acquire and group for operation a sufficient area to warrant the installation of efficient hydraulic machinery.

HOMESTEADS IN YUKON TERRITORY.

Thirty-three homestead entries in the Yukon Territory are now in force embracing a total area of 4,027.50 acres.

PETROLEUM.

By an Order in Council dated March 11, 1910, the regulations governing the reservation and sale of petroleum and natural gas rights the property of the Crown were rescinded, and regulations for the leasing of such rights were substituted therefor, and came into effect on May 2, 1910. These regulations provide for the issue of a lease to an applicant of the petroleum and natural gas rights under an area not exceeding 1,920 acres of adjoining lands. If the tract applied for is situated in unsurveyed territory, it must be staked out by the applicant in person. The term of the lease is twenty-one years, renewable for a further term of like duration, the rental for the first year being twenty-five cents an acre, and for each subsequent year, fifty cents an acre. The lessee must have satisfactory machinery on the land within one year from the date of the lease, and he must commence boring operations within fifteen months from such date. No royalty will be charged on the sales of the petroleum up to January 1, 1930.

There are now in force under these regulations 304 petroleum and natural gas leases, embracing a total area of 283,249.36 acres, distributed as follows: In the province of Alberta 302 leases, including 281,169.36 acres, and in the Province of Saskatchewan two leases, including 2,080 acres. The total revenue derived from petro-

leum lands during the year amounts to \$50,286.15.

During the year four reservations have been renewed under the provisions of the late regulations to enable the several applicants to conduct petroleum prospecting operations on the tracts reserved for them. These reservations embrace a total approximate area of 7,360 acres, and evidence has been filed in the department to show that prospecting outfits have been installed, and that operations are being actively carried on upon these several tracts.

QUARRYING.

By an Order in Council dated May 13, 1910, regulations for the leasing and administration of Dominion lands containing limestone, granite, slate, marble, gypsum, marl, gravel, sand, or any building stone, were approved. These regulations came into effect on June 15, 1910. The maximum area which may be leased to an applicant is 40 acres, the term of the lease being twenty-one years, renewable at an annual rental of one dollar an acre. Personal application for a lease must be made and if the land is unsurveyed personal staking is necessary.

The number of leases now in force which were issued under the provisions of

these regulations is 238, distributed as follows:-

In Manitoba—70 leases, containing an area of 2,247.42 acres.

In Saskatchewan—4 leases, containing an area of 113.46 acres.

In Alberta—90 leases, containing an area of 6,188.60 acres.

In Northwest Territories—15 leases, containing an area of 600 acres.

In British Columbia—59 leases, containing an area of 1,936.72 acres.

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TAR-SANDS.

By an Order in Council dated February 14, 1910, regulations were approved for the disposal of tar-sand rights, the property of the Crown, in that portion of the Province of Alberta lying North of Township 80, and between the 4th and 5th initial meridians.

Under the provisions of these regulations six leases have been issued during the year, comprising a total area of 9,892 acres.

WATER RIGHTS.

There are now in force in the Yukon Territory 376 grants to divert water for mining purposes, aggregating a total of 89,092 miner's inches. During the fiscal year 23 water rights were issued, comprising 6,750 miner's inches.

Eleven leases have been issued to divert water for power purposes in the territory, including in all 60,200 miner's inches. The works in connection with two of these grants have been completed, and about 5,000 horse-power generated. Three of the grants have lapsed, and the works in connection with the remaining six are under construction.

COAL MINING LANDS.

The total amount collected during the year on account of coal mining lands sold under the provisions of the late regulations was \$11,861.66, of which amount \$11,790.51 was on account of coal lands in the province of Alberta, \$11.15 on account of such lands in the province of Saskatchewan, and \$60 in connection with coal lands in the Yukon Territory. The total amount collected on account of the sale of coal mining lands up to March 31, 1912, was \$2,083,928.38.

The statement lettered 'D.' at the end of this report shows the revenue derived from the sale of coal lands for each fiscal year since 1896.

COAL LEASES.

The total number of coal mining leases in force at the close of the fiscal year was 690, including a total area of 403,013.66 acres, distributed as follows:—

In the province of Alberta—631 leases, embracing an area of 390,938.85 acres. In the province of Saskatchewan—48 leases, comprising an area of 2,399.56 acres.

In the Railway Belt, British Columbia—8 leases embracing an area of 9,375.25 acres.

In the Yukon Territory—3 leases embracing an area of 400 acres.

The total number of leases of coal mining rights issued during the year was 233, comprising an area of 160,285.35 acres. The total revenue received during the year for rental of coal mining rights was \$347.982.92.

The following is a statement showing the revenue collected in the western provinces and in the Yukon Territory on account of the sale of coal lands during the fiscal year, under the provisions of the late regulations:—

Province of Alberta	\$11,790	51
Province of Saskatchewan	11	15
Yukon Territory	60	00
Total	\$11.861	66

ROYALTY ON COAL,

The late regulations governing the sale of coal mining lands provided for the payment of a royalty of ten cents per ton of 2,000 pounds on the output of the mine. This regulation came into force on April 6, 1901, after which date all sales of coal mining rights were made subject to such regulation.

Under the regulations governing the issue of leases to mine coal, the royalty is fixed at 5 cents per ton of 2,000 pounds, on the merchantable output of the mine.

The following statement shows the amount collected on account of royalty during each year since the regulations came into effect:—

1901-2	Nil
1902-3	Nil
1903-4	\$ 59 30
1904-5	2,979 70
1905-6	2,996 18
1906-7	4,456 80
1907-8	9,169 35
1908-9	6,052 23
1909-10	155.371 86
1910-11	221,246 12
1911-12	,

The total revenue derived from coal mining lands on account of purchase price, rental and royalty, during the fiscal year, amounted to \$468,166.65.

The following is a statement of the office work performed during the year:-

Letters received and recorded	14,574
Letters sent	21,954
Pages of memoranda and schedule	9,996
Plans and sketches prepared	748
Accounts kept posted	9,050
Accounts rendered	9,355
Assignments accepted and registered	378
Returns examined and posted	1,796
Receipts issued	376
Refunds examined and prepared	258
Applications for coal locations received, covering an approxi-	
mate area of 586,200 acres	759
New entries and renewals for mining locations granted in	
the western provinces and territories, not including the	
Yukon	235
Applications for stone, gypsum and clay	275
Applications for tar, asphalt and petroleum	452
Applications for quartz claims in Alberta, Saskatchewan	
and Manitoba	58
Applications for iron claims	5
Applications for placer mining claims in Alberta and Sas-	
katchewan	168
Applications for dredging leases	59
Applications for homestead entry in the Yukon Territory.	6
Homestead entries granted in the Yukon Territory	4
Placer mining grants, renewals and re-locations in the	
Yukon Territory	5,819
Quartz mining locations granted in Yukon Territory	219

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3 GEOF	RGE V., A. 1913
Requisitions for patent prepared	153
Applications to purchase or lease lands in the Yukon Terri-	
tory	36
Applications for water frontage	8
Agricultural leases in force in the Yukon Territory, com-	
prising an area of 232.58 acres	24
Leases for water frontage issued	3
Water front leases in existence	26
Gold dredging leases issued	19
Coal mining leases issued	261
Timber licenses prepared	108
Stone quarrying leases issued	138
Prospecting reservations made under Section 18 of the Coal Mining Regulations, embracing an area of 33,430.48	
Prospecting reservations made under Section 34 of the Coal	21

Mining Regulations, embracing an area of 3,680 acres.

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

H. H. ROWATT,
Chief of Branch and Secretary of the Yukon.

-Statement of Receipts on account of Coal and Minerals in the Provinces and Territories, also Timber, Hay, Coal, Hydraulic Mining, Dredging, Royalty on Gold, Mining Fees, Rental of Agricultural Lands, Water Power and Water Fronts, Survey Fees and Sale of Dominion Lands in the Yukon, for the Fiscal Year 1911 and 1912.

REVENUE OF DOMINION LANDS INCLUDING THE YUKON TERRITORY.

Gold Export Tax.	\$ cts. 6,269 68 11,437 27 11,879 13 17,879 13 17,879 13 17,819 13 19,143 83 22,009 17 4,161 57	1 98 197 00 19 100,606 29
Dredging Leases, Yukon.	\$ cts. 250 00 100 00 105 00 250 00 300 00	900 96 100 00 2,860 96
Dredging Leases, N. W. T.	\$ cts.	1,160 00
Hydraulic Leases,	\$ cts. 1,528 39 10,150 00 55 00 315 65 875 00 1,383 00	770 04
Mining Fees.	\$ cts. 3,035 \$8 cts. 3,786 \$25 \$8 \$755 \$90 5,552 \$00 7,011 \$00 5,116 \$00	12,209 55 7,886 00 4,361 50 74,974 92
Timber Dues, Yukon.	\$ cts. 1,127 00 886 52 3,633 31 913 69 1,469 79 1,469 43 4,488 13 502 75	835 00 1,068 50 1,446 77 18,271 69
Rental Yukon.	\$ cts. 1,690 47 5,948 34 14 81 150 22 714 35 714 35 5047 01 85 46	37 75 1,435 28
Coal Rental.	\$ cts. 16,463 76 25,236 68 7,857 73 30,307 36 27,317 52 30,637 19 49,999 68 38,143 77 21,638 86	36,378 15 23,529 26 30,472 66 347,982 92
Coal Royalty.	\$ cts. 26,492 28 12,997 92 6,735 05 8,744 73 4,194 09 3,944 09 2,885 90 2,581 59	15,869 28 10,304 40 14,736 95 108,322 07
Coal Mining.	e cts. 300 00 350 00 550 00 315 00 315 00 475 00 715 00 715 00	532 00 470 00 945 00 5,727 00
Coal Sales.	\$ cts. 3,443 70 3,743 70 85 41 8,277 30 2,45 45 63 70 63 70	55 37 123 00 4,085 37 11,861 66
Dominion Lands Sales.	\$ cts. 102 41 233 30 229 71 22 55 73 55	219 42 57 50 938 44
Quartz Acreage Sales.	\$ cts. \$29 38 175 18 198 30 106 76 98 50	160 67 267 50 3,022 46
Month.	1911. April July July Suptember. October November. December.	January February

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REVENUE OF DOMINION LANDS INCLUDING THE YUKON TERRITORY.

-Statement of Receipts on account of Coal and Minerals in the Provinces and Territories, also Timber, Hay, Coal, Hydraulic Mining, Dredging, Royalty on Gold, Mining Pees, Rental of Agricultural Lands, Water Power and Water Fronts, Survey Fees and Sale of Dominion Lands in the Yukon, &c.—Concluded.

Total.	8 cts. 55,777 21 75,064 47 51,532 79 64,838 16 72,179 67 91,770 29 65,688 48 65,688 48 65,688 48	51,783 63 66,742 90 787,128 15
Survey Fees.	se cts.	200 00
Interim Receipt Account, Yukon.	\$ cts. 10 00 4 50 10 00 10 00	125 00
Gypsum.	8 CES. 115 00 40 00 15 00 205 00	385 90
Sand, Gravel.	8, 1, 802 1, 802 2, 1, 802 2, 1, 802 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	7,081 84 8,774 09 50,286 15
Sand, Stone and Gravel.		142 50 3 00 1,714 76
Far-sands.	\$ cts. 365 00 3850 00 3850 00 3850 00 5 00 665 00	20 20 8,1110
Water Power, Yukon.	3, 128 63 50 00 3, 128 63 50 00 3, 128 63	10,689 62
Нау, Улкоп.	% cts. 259 40 84 00 84 00	169 00
Home-stead	\$ cts.	10 00
Map Sales Office and Registra- tion Fees,	cts. 2 00 0 17 0 17 0 17 0 18 0 19 0 19 0 19 0 19 0 19 0 19 0 19	256 00
Quarrying.	\$ cts. 435 00 460 92 515 83 2,097 11 1,012 65 25 1,247 65 1,247 65 1,247 65 891 73	1,238 33 348 81 1,320 62 11,345 48
Free Certificates Export of Gold.	00 00 00 00 00 00 00 00 00 00 00 00 00	2 00 2 00 118 50
Free Certificates Export of Gold.	April May June Juny August September October November December	January February March

DOMINION LANDS REVENUE.

SESSIONAL PAPER No. 25 B.—Statement showing the Total Amount of Revenue collected at each Agency, including the Yukon Territory, for the Fiscal Year ending March 31, 1912.

Revenue received at Head Office on account of the sale of coal lands in the Western Provinces, is, in the statement, credited to the several agencies in which the lands are situated.

Dredging Leases, Yukon.	s cts.	936 77 1,919 19 00 6
	cts.	300 00 6250 06
Hydranlic Dredging Leases, N.W.T.	ets.	3,449 51
Mining Fees.	e cts.	360 00 388 50 1,571 50 12 50 887 50 5 00 840 00 366 00 3,485 50 3,435 50 2,337 50
Timber dues, Yukon.	S cts.	
Rental, Yukon.	& cts.	
Coal Rental.	& cts.	160 00 19,645 72 45,116 18 85,789 24 86,789 24 86,789 24 86,890 85 8,990 85 8,990 00 136,135 28 136,135 28
Coal Royalty.	& cts.	2, 463 10 2, 486 76 2, 467 49 2, 467 49 2, 467 49 2, 467 49 2, 467 49 689 41 689 41 689 523 21 689 523 21 689 524 44
Coal Mining.	cts.	5 00 5 00 625 00 625 00 1,285 00 1,555 00 1,555 00 200
Coal Sales.	ets.	1,674 60 6,470 07 11 15 2,564 29 1,081 55
Dominion Lands Sales.	cts. & cts.	57 50 151 39
Quartz Acreage Sales.	& cts.	
Agency.		Battleford. Brandon. Brandon. Brandon. Calgarf. Calgarf. Calgarf. Dauplin. Extraord. Carnde Prairie. Factorial Extraordiant Savitation. Navericant Hat. Navericant Hat. Navericant Hat. Navericant Prairie. Prairie River. Prairie River. Savit Current. Savit

DOMINION LANDS REVENUE.

B.—Statement showing the Total Amount of Revenue collected at each Agency, including the Yukon Territory, for the Fiscal Year ending March 31, 1912—Continued.

		3 GEORGE V., A. 1913
Dredging Leases, Ynkon.	et et s	2,860 96
Dredging Leases, N.W.T.	90 66	1,160 00
Hydraulic Dredging Leases, N.W.T.	₹ 0	15,602 55
Mining Fees.	s ets.	74,974 92
Timber dues, Yukon.	\$ cts. 17,397 94 873 76	18,371 69
Rental, Yukon.	\$ ets.	11,435 28
Coal Rental.	120 cf.5.	247,982 92
Coal Royalty.	cts.	108,322 07
Coal Mining.		5,727 00
CoalSales.	\$1000 \$200 \$400 \$400 \$400 \$400 \$400 \$400 \$	11,861 66
Dominion Lands Sales.	7 50 cts. \$ cts. \$ 0.05. \$ cts. \$ 0.05. \$ cts. \$ 0.05.	938 74
Quartz Acreage Sales.	\$ 267 267 139	3,022 46 938 44
Agency.	Conrad Mining Recorder's Office Dawson Royalty Collector's Office. Dawson Crown Timber Office Whitehorse Crown Timber Office Whitehorse Crown Timber Office Whitehorse Royalty Collector's Office Whitehorse Compression of the Collector's Office Whitehorse Compression of the Collector's Office Whitehorse Compression of the Cortymile Royalty Collector's Office. Dawson Dominion Lands Office. Dawson Mining Recorder's Office. Whitehorse Dom. Lands Office. Whitehorse Mining Recorder's Office.	

DOMINION LANDS REVENUE.

B.—Statement showing the Total Amount of Revenue collected at each Agency, including the Yukon Territory, &c.—Continued.

	Total.	& cts.	22, 136 00 22, 136 60 43, 97.7 78 30, 85 50 130, 96.7 42 3, 516 00 878 80 5, 575 57 1, 218 60 1, 218 60 1, 218 60 1, 218 60 1, 218 60 1, 218 60 1, 218 60 1, 218 60 1, 218 60 2, 378 32 63, 115 70 2, 357 50 2, 357 50
	Interim Receipt Account, Yukon.	\$ cts.	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	Survey and Office Fees.	ets.	25. 25. 00.
	Gypsum.	s cts.	100 00 1185 00 110 90
	Petroleum	\$ cts.	507 55 21,296 67 55 00 13,310 48 5 00 5 00 15,081 45
	Sand, Gravel.	ets.	27 22 155 19 468 50 1 00 1788 00 1 10 50 1 1 00 247 85
, ,	Tar-Sands	e cts.	8,105 00
	Water Power, Yukon.	& cts.	10,639 62 50 00
	Нау, Тикоп.	\$ cts.	
	Homestead Fees,	ets.	
	Map Sales, Office and Registration Fees.	\$ cts.	52 50 50 50 60 60 60 60 60 60 60 60 60 60 60 60 60
70 011	Quarrying	ets.	11 12 1 12 1 12 1 12 1 12 1 14 12 12 12 13 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Omt	Free Certificates Ex- port of Gold.	& cts.	
S one Town	Gold Export	e cts.	
D.—DIALEMENT SHOWING	Аденсу.		Battleford Brandon Banff Banff Banff Banth Banch Bethonton Estevan Grande Prairie Kamloops Letthridge Moosejaw New Westminster Peace River Prince Albert Prince Albert Saskatoon Winnipes Office Dawson Gold Commissioner's Office Sixtymile Mining Recorder's Office Sixtymile Mining Recorder's Office Commissioner's Office Commissioner's Office Office

DOMINION LANDS REVENUE.

B.—Statement showing the Total Amount of Revenue collected at each Agency, including the Yukon Tertitory, &c.—Concluded.

Total.	es.	1,201 00	100,049 64 17,566 94	873 75 111 00	555 90 7 50	8,207 74	139 10 5,677 34	2,615.86	787,128 15
Interim Receipt Account, Yukon.	ets.		, . 	: :					211 50
Survey and Office Fees.	s cts.					1,020 00			1,045 00 211
GAbsam.	& cts.	•				: :	. :		385 90
Petroleum	s cts.	:							50,286 15 385
Sand, Stone and Petroleum (travel.	es cts.								1,714 76
Tar-Sands	e cts.								8,110 00
Water Power Fees,	& cts.								10,689 62
Нау, Гиксп.	ets.	:	169 00		: :				30 00 169 00
Homestead Fees.	\$ cts.			: .		20 00	10 00		
Map Sales, Office and Registration Fees	& cts.		: :		:::	91 00	. +		256 90
Quarrying	S. cts.	:							11,345 48 256
Free Certificates Export of Gold.	ets.	:		90 111 00	7 50		: :		118 50
Gold Export	& ots.	100,049 64		555 90	10		: : : : : : : : : :		100,606 29 118
Agency.		Khane Mining Recorder's Office.	Dawson Crown Timber Office.	Office Dawson Comptroller's Office	Whitehorse royally Conectors Office Whitehorse Comptroller's Office	Office	Dawson Minning Necorder's Office. Whitehorse Dom. Lands Office. Whitehorse Mining Recorder's	Office	

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REVENUE OF THE YUKON TERRITORY.

C.—Statement of Receipts from Timber, Hay, Coal, Hydraulic Mining, Dredging, Royalty on Gold, Mining Fees, Rental of Agricultural Lands, Water Fronts and Water Power, Survey Fees and the Sale of Don'inion Lands for the Fiscal Year 1911 and 1912.

Dredging Selection Nurses Vulkon.	ets.	250 00	105 00	200 00		100 00	2,860 96
Hydraulic Leases.	ets.	1,528 39 10,150 00	580 50	875 00		770 04	15,602 55
Mining Fees.	ets.	2,865 38 3,674 25 3,870 25	5,144 50 8,984 13 7,388 50	2,873 00		11,771 00 7,846 00 3,966 50	69,035 01
Timber Dues Yukon	ects.	1,127 00 886 82 3,633 31	913 69 540 79	1,369 43 4,488 13		835 00 1,068 50 1,446 77	18,271 69
Rental Yukon.	€ cts.	1,690 47 5,948 34 14 81	150 22	2,017 01 4 00 5,047 01	è	225 00 37 75	11,435 28
Coal Rental.	≠ cts.	00 04			3		120 25
Coal Coal Coal Mining, Royalty Rental.	ets.		20 00 110 00 110 00	200 00			390 00
Coal Mining.	& cts.	2 00			•		5 00
Coal Sules,	ets.			00 09			
Dominion Lands	& cts.	102		: 25 : 25 : 25 : 25 : 25 : 25 : 25 : 25		89 89	729 55
Quartz Acreage Sales.	St Cts.		329 38 175 18 498 30	166 76 98 50 826 17	:	160 67	
Month.	1911.	April	June, July Approx	September October November	December	January February	Total

REVENUE OF THE YUKON TERRITORY

C.—Statement of Receipts from Timber, Hay, Coal, Hydraulic Mining, Dredging, Royalty on Gold, Mining Fees, Rental of Agricultural Lands, Water Fronts and Water Power, Survey Fees and the Sale of Dominion Lands, &c.—Concluded.

Total.	\$ cts.	6,049 76 18,420 98 34,420 98 34,229 32 22,573 32 22,573 16 28,027 88 32,683 16 17,083 99 8,171 70 9,421 53 9,421 53	234,497 66
Survey Fees.	s cts.	845 00 000	1,045 00
Interim Receipt Account, Yukon.	ets.	10 00 4 50 10 00 125 00	211 50
Уаtет Ромег, Уикоп.	S. cts.	3,128,62 50 00 7,500 00 1 00	10,689 62
Нау, Үчкоп.	ets.	000 52 84 000 88	169 00
Homestead Fees.	S. Cts.	20 00 10 00	30 00
Map Sales, Office and Registra- tion Fees.	& cts.	3 4 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	95 00
Free Certificates Export of Gold.	es cts.	4 c c c c c c c c c c c c c c c c c c c	118 50
Gold Export	\$ cts.	6,269 68 14,437 23 16,443 737 117,879 13 18,143 83 22,009 17 4,161 57 1,462 74	100,606 29
Month.	1911.	April May June June June June June June June June	Total

H. H. ROWATT, Chief of Branch.

D.—Statement showing the total Revenue derived from the sale of Coal Land for each Fiscal Year since 1896.

Fiscal Year.	Amount.
	\$ ets.
1896–1897	75 76
1897–1898	1,833 74
1898–1899	350 00
1899–1900	5,650 33
1900–1901	101,772 00
1901–1902	16,270 32
1902–1903	31,055 38
1903–1904	68,949 75
1904–1905	35,695 00
1905–1906	125,754 12
For the nine months ending March 31, 1907	335,795 97
1907–1908	346,813 23
1908–1909	276,186 86
	377,445 86
	191,257 23
1911–1912	11,861 66

H. H. ROWATT,

Chief of Branch.

E.—Statement showing the total Gold Production, the total subject to Royalty and the total Royalty collected for each Fiscal Year from May 1, 1898, to March 31, 1912.

Fiscal Year.	- Gold Production.	Subject to Royalty.	Royalty Collected.	Total Revenue.
1898 1899 1900 1901 1902 1903 1904 1905 1906 1907	. 7,582,283 02 9,809,464 64 9,162,082 79 . 9,566,340 52 . 12,113,015 34 10,790,663 12 . 8,222,053 91 . 6,540,007 09 . 3,304,791 05 . 2,820,161 60	\$ cts. 2,732,928 20 5,882,626 00 7,307,720 00 7,231,416 17 8,367,225 88 12,113,015 34 10,790,663 12 8,222,053 91 6,540,007 09 3,304,791 05 2,820,161 60	\$ cts. 273,292 82 588,262 37 730,771 99 592,660 98 331,436 79 302,893 48 272,217 96 266,760 87 163,963 25 82,622 42 70,504 65	\$ cts. 273,292 82 589,943 52 733,041 04 596,368 03 331,532 04 302,893 48 272,217 96 206,760 87 163,963 25 82,622 42 70,504 65
1909 1910 1911 1912	3,594,251 20 4,126,727 60	3,260,282 80 3,594,251 20 4,126,727 60 4,024,236 75	81,507 07 89,844 10 103,168 19 100,606 29	81,507 07 89,844 10 103,168 19 100,606 29
1912	4,024,236 75	4,05		24,236 75 100,606 29

H. H. ROWATT,

Chief of Branch.

No. 25a.

REPORT OF THE COMMISSIONER OF THE YUKON TERRITORY.

Commissioner's Office, Yukon Territory, Dawson, April 30, 1912.

W. W. Cory, Esq., C.M.G., Deputy Minister of the Interior, Ottawa.

SIR,—I have the honour to report that during the fiscal year ending March 31, 1912, the amount of gold mined in the Yukon Territory upon which export tax was paid was 268,285.05 oz., which, valued at \$15 per ounce for the purpose of taxation, amounted to \$4,024,245.80, a decrease of 4,355.07 oz. from the amount mined during the year previous.

This decrease, I am informed, is accounted for by the fact that a number of producing mines were closed down pending the installation of more economical

methods of mining.

The bulk of the gold is produced by dredging and hydraulic operations carried on by several corporations, they having acquired most of the gold-bearing areas that

are known to contain gold in paying quantities.

As appears by the Report of the Gold Commissioner, some new discoveries of placer gold have been made during the year in the Stewart river, Sixtymile and other districts. Since my arrival in the territory, about a month ago, I have received very satisfactory reports from men prospecting in those new camps, and believe that with some improvement in transportation facilities to enable miners to take in supplies, a very material addition to the present area of placer gold-producing territory may be expected during the ensuing year.

Money was appropriated by the Yukon Council in June, 1910, to put a trunk road through one of the districts that has shown up so well this winter, and it is to be regretted that the late government did not see fit to have the road constructed, as it would have materially improved the overland highway through the territory and have proved the means of access to a large area of gold-bearing country, the

development of which has been, thus, directly retarded.

A large number of quartz claims are being held and representation performed on them. No large amount of development work has been done within the year with the exception of that carried on in the vicinity of Carcross near the southern boundary, where considerable prospecting has been done on the properties of the British Yukon Gold Company.

In the past the attention of miners in the vicinity of the rich placers has been given almost exclusively to the mining of placer gold, producing rich returns for a

comparatively small outlay.

A number of promising quartz prospects have been found in various parts of the territory, the development of which, along with the opening up of the recently discovered placer prospects, is of the utmost importance to the government, and should receive every reasonable assistance that can be rendered, as the continued prosperity of the territory depends almost entirely upon the establishment of paying quartz mines and the development of new placer diggings. From present indications there is every reasonable probability that both of these results will be accomplished.

As a number of vacancies existed in the Yukon Council, some constituencies being entirely unrepresented because of death, removals from the territory and resignations, and as the term of the then council would expire in June next, I deemed it advisable to dissolve the council in March and have issued the writs for a general election.

A session of the council will be held as soon as possible after election, and I confidently expect that the appropriations to be made by the council will be with a view to further encouraging and developing the mining industry in this country.

The reversal by the Railway Board of Canada of its order to the White Pass & Yukon Railway company, to reduce its freight rates 33\(\frac{1}{3}\) per cent, has not had a tendency to encourage prospecting in this territory. Had the order been adhered to operations could have been carried on with much less expense, as a large percentage of the cost of mining consists of freight rates paid to that company on machinery and goods necessarily imported, it having practically a monopoly of the transportation business.

As the order to reduce rates was made by the board after a lengthy hearing of the case, its reversal of that order at the request of the railway company came as a surprise to the mine operators of this country. That the president of the transportation company suggested a voluntary reduction of rates in lieu of the order to reduce, is advanced by the board as a reason for its latest finding.

As yet no notice of any reduction has been received by shippers here. This is a matter of the utmost importance to all persons prospecting and mining in Yukon; in fact, to all inhabitants of the territory, as all lines of business are absolutely dependent upon mining.

From the time of the incorporation of the City of Dawson as a municipality revenue for local purposes, such as fire department, lighting of streets, building of sidewalks and water supply, has been raised by a rate imposed upon real estate, personal property and income.

Up to 1909 no persons in the employment of the Federal Government had been assessed on income, either salary or living allowance. In that year the Assessment Appeal Court ordered that all persons should be rated, including the judges of the Territorial Court.

The judges, on various pretences, objected to paying. All appealed but the assessment was confirmed. The principal ground taken by them was that their independence as judges was assailed, and that, in any event, their living allowance was a pure gratuity, and as such non-assessable.

In the autumn of 1910 Judge Dugas commenced an action in the Territorial Court attacking the assessment on nearly every conceivable ground. The trial was before Judge Craig (also an appellant) and Judge Macaulay (also an appellant) was a witness. On all the issues Judge Craig gave judgment in favour of Judge Dugas, and especially holding that the money voted by parliament as living allowance was a gratuity.

It was also held that an ordinance, known as the Plebiscite Ordinance, was ultra vires of the Yukon Council. This was the ordinance under which the commissioner of the territory had power to levy the rate under the Assessment Ordinance.

This threw matters into a chaotic condition and was an incentive to the people not to pay taxes. Judge Craig had previously taken the ground that living allowance was recoverable by law, which appears in the Auditor General's Report for the year 1903.

Judge Craig, on the 16th instant, commenced an action in the Territorial Court against the commissioner of this territory, and as well including the Territorial treasurer and tax collector and assessor, attacking the taxation. No point of attack is overlooked and he seeks, as well, to recover some taxes already paid. This will, if proceeded with, come for trial before Judge Macaulay.

It would seem difficult, if not impossible, now, to get an expression of opinion from the courts upon this question, as all of the judges have, by their actions, precluded themselves from giving an impartial opinion; not only in their own cases

but in those of other employées of the government, or persons appealing from

The ground has been taken by the community generally that no good reason exists why all persons enjoying the usual privileges of a corporation, such as this is,

should not contribute their proportion towards its maintenance.

I propose to take the judgment rendered by Craig, J., in favour of Dugas, J., to appeal, and in the meantime to endeavour to have such legislation enacted by the commissioner in council as may be required (if any), to prevent a continuance of such conditions.

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

GEORGE BLACK,

Commissioner.

No. 25b.

REPORT OF THE COMPTROLLER.

Comptroller's Office, Dawson, Y.T., April 9, 1912.

Honourable George Black, Commissioner of the Yukon Territory, Dawson, Y.T.

SIR,-I have the honour to submit the annual report of the Comptroller's office

for the fiscal year ending March 31, 1912.

Under the appropriation through the Department of the Interior, 'Administration of the Yukon Territory,' the expenditure amounted to \$138,067.12, as shown by the monthly statements and vouchers forwarded to the department.

The expenditure on account of the Department of Justice was \$13,318.06, monthly

returns being made to that department.

Under the letter of credit account, Department of Public Works, for the maintenance and repairs of public buildings in the Yukon Territory, the expenditure was

\$56,084.62

The expenditure on account of the Department of Indian Affairs for the relief of sick and destitute Indians in the Yukon Territory was \$7,544.53. This is an increase of about \$1,500 over last year's expenditure, which is accounted for by the fact that, owing to the outbreak of smallpox in Dawson last summer, the Indians were not allowed to come to town during that period and were, therefore, unable to sell their bead-work, &c., and were thus cut off from their usual source of revenue.

As you are aware, there was a serious outbreak of smallpox among the Indians at Rampart House on the Porcupine River last summer. A telegram was received from J. D. Craig, of the Canadian Boundary Survey party, dated July 30, advising the administrator, Mr. Arthur Wilson, of the outbreak. The administrator wired the Deputy Minister, Department of Indian Affairs, and advice was received on August 25, that the officer commanding Mounted Police would honour drafts up to ten thousand dollars on this account. Of this amount \$9,998.34 was expended on vouchers certified to by the administrator and comptroller, the balance being refunded by the police department to the Receiver General. A further credit of \$5,000 was established in the name of the commissioner and comptroller on December 12, of which amount

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\$1,434.17 has been expended up to the end of the fiscal year. The doctor in charge advises that there were 98 cases in all; and in a letter dated March 1, he states that there were no further developments of cases since February 2.

The Royalty Export Tax collected in the territory for the year ending March 31 amounted to \$100,606.29,—collected at Dawson, \$100,049.64, Whitehorse, \$555.90,

and Fortymile 75 cents.

The revenue from free certificates issued to exporters of gold from Alaska was \$118.50,—collected at Dawson \$111, and Whitehorse \$7.50.

The revenue collected in the Gold Commissioner's office on account of mining dues amounted to \$68,878.80; and in the Crown Timber and Land Agent's office on account of Crown Timber, \$17,566.94, and Dominion Lands, \$8,217.74. The revenue from these various sources was deposited in the Dominion Revenue Trust Account in the Canadian Bank of Commerce, daily as received, and drafts purchased weekly in favour of the Receiver General and forwarded to the department. Weekly statements of these various sources of revenue, with the counterfoils, were checked in this office, and transmitted to the department; and monthly summaries were also checked and transmitted.

The revenue in the Registrar's office on account of land titles fees, for the year ending March 31, amounted to \$1,066.05, which was deposited daily in the Dominion Revenue Trust account as received, and drafts purchased weekly in favour of the Receiver General and forwarded to the department. Monthly statements in duplicate were also checked in this office and forwarded to the department.

The revenue from the sale of Yukon Territorial Court law stamps amounted

to \$1,728.

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

G. A. MACLEAN.

Comptroller.

No. 25c.

REPORT OF THE GOLD COMMISSIONER.

Office of the Gold Commissioner of the Yukon Territory, DAWSON, Y.T., April 12, 1912.

The Commissioner of the Yukon Territory, Dawson, Y.T.

SIR,—I have the honour to submit herewith my report for the twelve months ending 31st ultimo, made up as follows:-

- 1. A financial statement in duplicate, giving the receipts of the Gold Commissioner's office during the fiscal year in question, together with the receipts collected at the offices of the mining recorders for the Duncan and Sixtymile mining districts, which were accounted for by the said mining recorders to this office during the fiscal year in question.
- 2. A statement in duplicate showing a recapitulation of the receipts for the fiscal year in question.
- 3. A comparative statement in duplicate with the receipts of the previous fiscal year which ended on March 31, 1911.

This statement shows an increase of \$1,693.79 over the receipts of the previous fiscal year.

It will be seen from this statement that there is considerable increase from the receipts on account of placer mining grants, which is accounted for by the stampede which took place last spring on Britannia and Canadian creeks, in the Dawson mining district, and also by the stampede on Matson creek and some of its tributaries, in the Dawson mining district, which took place last December, January, February and March.

On the other hand there is a considerable decrease from the receipts on account of renewal placer mining grants, which is accounted for to a great extent by the fact that a large number of placer mining claims held by the Yukon Gold Company, which came due for renewal on January 1 last and which were allowed to revert to the Crown on that day, were relocated for the said company immediately after January 1 last, in claims of the sizes allowed by the Yukon Placer Mining Act, so as to reduce the number of grants from 243 to 51.

It will also be seen that the receipts on account of water rights and of quartz mineral claims have decreased materially, which is accounted for by the fact that on the old creeks there is very little occasion for the issuing of water rights at present, and that there is less interest taken in quartz mining claims in the Dawson mining district than during the previous years.

The mining operations in the various mining districts of the Yukon Territory have been the subject matter of reports from the various mining recorders for the said districts, and also from the mining inspector for Dawson mining district, and from the several agents to the mining recorders, except from the mining recorder for the Duncan mining district and from the agent to the mining recorder on Bonanza creek, who have not yet forwarded their reports for the year which ended on November 1 last. Duplicate copies of the various reports in question have been forwarded to the Department of the Interior under separate letters, when received, and as these various reports are too long to attach to this report, I will only give a short synopsis of their contents.

The mining operations of Canadian Klondyke Mining Company, Limited, on the Klondyke river and its tributaries during the last fiscal year, were on a larger scale than during the previous fiscal year, the two dredges of the company having been operated during the whole of last season.

The mining operations of Yukon Gold Mining Company on Bonanza and Hunker creeks and their tributaries during the last fiscal year were also on a much larger scale than during any of the previous years, owing to the addition of two new dredges to their fleet of dredges.

The Consolidated Dredging Company, Limited, operated also on one of their lease-

holds on the Fortymile river during a portion of last summer.

On the other hand individual mining operations by ordinary placer mining methods or by hydraulicking, were carried on by a substantial number of people with satisfactory results on some of the old creeks, as well as on several of the new creeks in the Dawson Mining district, but not to the same extent as in the two previous years, owing to the fact that Mr. A. N. C. Treadgold has been acquiring a large number of placer mining claims on some of the old creeks for the several mining companies which he has organized in that connection and has been allowed to renew a large number of those claims with work done in connection with the developing of water power grants Nos. 5, 8 and 10.

Prospecting and development work was also carried on successfully on various other creeks in the Dawson mining district, namely, All Gold, Goring, Black Hills,

Scroggie, Barker, Thistle. Henderson and others.

Development work in quartz mining claims in the Dawson mining district has not yet recovered from the blow which it received during the previous fiscal year by

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reason of the Dome Development Company, Limited, having failed to establish a mine on one of their claims. However, new efforts were made last summer towards developing the holdings of the 'Lone Star, Limited,' on Victoria Gulch, with the result that a two stamp mill was installed and put in operation last fall by Mr. E. H. Searle, and it is his intention to operate the mill in question during the present season.

The stampede on Britannia and Canadian creeks hereinabove mentioned, resulted in about twenty people wintering in the said locality this winter, and doing prospecting and development work thereon, the results of which remain yet to be established.

As regards the stampede on Matson creek and its tributaries, it remains yet to be established whether there is a paying streak on any of the said creeks, although some substantial pay has been located in a few places apart from Discovery Claim, and it will require considerable additional prospecting and development work to demonstrate whether the country will be a producer or not. A large number of the owners of claims in that locality propose to resume operations next fall, and there is no doubt that if there is any regular paystreak in that locality, it will then be located and determined.

In the Sixtymile mining district conditions have not materially changed from the previous year.

In the Duncan mining district mining operations were conducted on a larger scale than in any previous year on Highet creek, but on Haggart creek and Dublin gulch only three plants were operated last summer. A good deal of interest was taken in quartz mining claims at the head of Dublin gulch last summer, but it will require some more development work to establish the future of that locality. Neither The Yukon Basin Gold Dredging Company, Limited, nor The Stewart River Gold Dredging Company, Limited, were operating on their dredging leaseholds on the Stewart river and the McQuesten river nor on their placer mining claims along the McQuesten river during last summer; the dredge formerly owned by the said Yukon Basin Gold Dredging Company, Limited, was sold to some operators in Fairbanks, Alaska, and taken down there early last summer, whilst the other company is now in liquidation.

Your obedient servant,

F. X. GOSSELIN,
Gold Commissioner.

COMPARATIVE STATEMENT.

RETURNS Gold Commissioner's Office, Dawson, Y.T.

Placer grants 2,490 00 12,760 00 10,270 00 Renewals 44,195 00 39,045 00 5,150 Relocations 4,170 00 3,120 00 1,050 Registered documents placer. 4,061 00 4,885 00 774 00 Abstracts placer. 22 50 56 00 33 50 Water rights. 1,130 00 155 00 975 Water power 800 00 800 800 Hydraulics 3,199 59 3,449 51 249 92 Dredging 345 54 1,919 19 1,573 65 Drainage. 5 00 5 00 Quartz records 2,155 00 870 00 1,285 Quartz registered documents 1,024 50 292 50 732	Placer grants Renewals Relocations Registered documents placer Abstracts placer Water rights Water power Hydraulics Dredging Drainage. Quartz records. Quartz registered documents.	\$ cts. 2,490 00 44,195 00 4,170 00 4,061 00 22 50 1,130 00 800 00 3,199 59 345 54	12,760 00 39,045 00 3,120 00 4,835 00 56 00 155 00 3,449 51 1,919 19 5 00 870 00 292 50 2,062 50	774 00 33 50 249 92 1,573 65 5 00	Decreas 1912. \$ c 5,150 1,050 975 800 1,285 732 590 65.
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FINANCIAL Statement of the Gold Commissioner's Office from April 1, 1911, to March 30, 1912, Dawson, Y.T.

RECEIPTS. Placer-To grants......\$ 11,890 00 Relocations..... 2,800 00 Renewals..... 35,460 00 Registered documents 4,476 00 Abstracts..... 56 00 -\$ 54,682 00 Quartz-To records..... 545 00 Certificate of work..... 1.877 50 Certificate of partnership.. 30 00 Certificate of improvements..... 7 50 227 50 Registered documents....... Lieu of assessment 100 00 139 10 Acreage..... Abstracts..... 7 50 2,934 10

Sur	ndry accounts—			
	To water rights	105 00		
	Hydraulics	3,449 51		
	Dredging	1,919 19		
			5,473	70
Du	ncan—			
	To placer grants	370 00		
	Placer relocations	170 00		
	Placer renewals	2,037 50		
	Placer registered documents	209 00		
	Water rights	50 00		
	Quartz records	325 00		
	Certificates of work	175 00		
	Registered documents	65 00		
	Certificate of partnership	25 00		
	Drainage grants	5 00		
		<u> </u>	3,431	50
Six	tymile—			
	To placer grants	500 00		
	Placer relocations	150 00		
	Placer renewals	1.547 50		
	Placer registered documents	150 00		
	Quartz certificate of work	10 00		
			2,357	50
		\$	68,878	80
Dis	bursements—			
	By gold commissioner's suspense	2 50		
	Gold commissioner's interim	32 00		
	Dominion revenue trust account	12 00		
	Comptroller	68,832 30		
			68,878	80
		\$	68,878	80
		_		

RECAPITULATION.

FINANCIAL STATEMENT Gold Commissioner's Office year ending March 30, 1912.

Payment lieu assess-	ects.	100	:	:	100
Abstracts quartz.	ets.	7 50	:	:	7 50
.Acreage.	\$ cts.	139 10			139 10
Certificate improve-	s cts.	7 50	:	:	7 20
-nood noiterteigeA	S cts.	227 50	65 00		292 50
Certificate partner-	s cts.	39	25	:	55
Certificate works.	& cts.	1,877 50	175 00	10 00	2,062 50
Quartz Records.	& cts.	545	325	:	870
. Эзгиівте.	\$ cts.	:	ũ	:	20
Dredging.	& cts.	1919 19	:	:	1919 19
Hydraulics.	& cts.	3,449 51	:	:	3,449 51
Water Rights.	S cts.	105	20	:	155
Abstracts placer.	& cts.	56	:	:	26
Registration docu- ments placer.	ese Cfs.	4, 176	209	150	4,835
Renewal Grants.	\$ cts.	3,5460 00	2,037 50	1,547 50	3,9045 00
Relocation Grants.	s cts.	2,800	170	150	3,120
Placer Grants.	e cts.	11,890	370	200	1,2760
		Dawson	Duncan	Sixtymile	Totals

No. 25d.

REPORT OF THE CROWN TIMBER AND LAND AGENT.

OFFICE OF THE CROWN TIMBER AND LAND AGENT OF THE YUKON TERRITORY. Dawson, April 12, 1912.

The Commissioner of the Yukon Territory, Dawson, Y.T.

SIR,—I have the honour to submit herewith my report of the business transacted in this office during the fiscal year ending 31st ultimo, in the following statements in duplicate, namely:-

1. A statement of the revenues collected from royalty on lumber cut on timber berths, dues paid in connection with timber permits, seizure dues on wood and lumber cut in trespass, and hay permits.

2. A statement of the revenue collected in the Dominion Lands Branch of this office from royalty on coal, sales of land, rentals of land, registration fees, survey fees, homestead entries and fees in connection with coal land.

These statements show an increase of \$4,794.10 in the Timber Branch, and \$1,239.68 in the Dominion Lands Branch, over the receipts for the previous fiscal year, which increases are accounted for partly by the payment of a long outstanding claim for \$1,500 for seizure dues and of some royalty on operations covering more than one year, and also of some arrears of rental.

Only one sawmill was operated during the last fiscal year in the Dawson division of the Yukon Territory, namely, the Klondike Sawmill, situated on the island in the Klondike river at its mouth, owned by the North American Transportation & Trading Company, but operated by the Yukon Sawmill Company under a lease.

Three homestead entries were granted during the fiscal year.

The wood and timber cutting operations along the Lewes, Yukon, Stewart and Klondike rivers, and in the vicinity of Dawson, show about the same activity as in the previous years.

The various wood camps within a radius of about ten miles from Dawson were frequently visited by the Crown Timber Inspector during the last fiscal year, and were found to be operated under proper authority.

The wood camps along the Yukon river have not been visited for several months, but I am satisfied that they are being operated under proper authority.

Your obedient servant.

F. X. GOSSELIN, Crown Timber and Land Agent.

CROWN TIMBER BRANCH.

	Royalty.	Timber Permits.	Timber Seizures.	Hay Permits.	Totals.
April. 1911 May " June " July " August " September " October " November " December " January 1912 February " March "	\$ cts. 175 25 1,149 49 103 50 441 00 342 50 1,763 63 12 50 35 50 638 77	506 54 828 50 954 93 2,714 50 293 00 599 50 818 50	266 00 1,588 00 107 50 34 25 75 00 72 09 83 00 35 00	26 00	\$ cts. 1,052 00 910 82 3,659 31 947 69 540 79 1,344 50 1,369 43 4,478 13 388 50 670 00 818 50 1,387 27
Totals	4,662 14	10,355 55	2380 25	169 00	1,7566 94

Total	receipts	1910-1911	\$12,772 84
11	11	1911-1912	17,566 94
Net	increase	1911-1912	4,794 10

CROWN LAND BRANCH.

	Land Rentals.	Land Sales.	Office Fees.	Survey Fees.	Home-steads.	Application Coal Lands.	Rental Coal Lands.	
1911.	\$ ets.	\$ cts.	\$ ets.	\$ ets.	\$ cts.	\$ cts.	\$ cts. \$	cts. \$ cts.
April May June July August September October November December.	3,089 84 14 81 150 22 664 35 493 04 127 01 4 00	2 00	14 75 12 25 42 00	\	10 00	5 00	50 14	3,136 84 24 81 200 00 0 00 0 00 505 29 0 00 369 01 11 50
January			1 00 5 00 3 50		10 00			15 00
Totals	6,531 49	52 00	89 00	1,020 00	30 00	5 00	100 25 39	0 00 8,217 74

	1910-1911 1911-1912		
Net increase,	1911-1912	\$1,239 68	

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No. 25e.

REPORT OF THE DIRECTOR OF SURVEYS.

Dawson, Y.T., April 1, 1912.

The Commissioner of the Yukon Territory, Dawson, Y.T.

Sir,-I have the honour to submit the following report of the Yukon Survey Office

for the fiscal year ending March 31, 1912.

Acting under the instructions of the Surveyor General dated April 3, 1911, I left Ottawa on May 1, and proceeded to Dawson to take charge of this office. I arrived on the night of May 17 and reported next morning to the Commissioner, who at once placed me in charge of the office.

The former Director of Surveys having retired on March 31, 1911, the staff had been directly under the charge of the Commissioner during the interval between that date and my arrival, and had been engaged in making tracings of plans required for the head office.

Immediately after my arrival the busy season commenced and the office has had a

great amount of work to dispose of since.

Instructions were issued to H. G. Dickson, D.L.S., of Whitehorse, for the completion of the Carmack's-Jarvis river reference traverse, commenced in 1910, and to J. D. Craig, D.L.S., chief boundary surveyor, for the survey of a townsite at Rampart House on the Porcupine river.

Later, I organized a field party to complete a triangulation survey of the Klondike and North Fork (Klondike) watersheds, which had been partly completed some years

previously.

Owing to the smallpox outbreak on the Porcupine Mr. Craig was unable to com-

plete his survey. The other surveys were completed in good season.

In addition to these government surveys Mr. Dickson (who is in private practice at Whitehorse) has sent in returns of survey of 47 group lots; Mr. Gibbon, formerly of Dawson, has sent in returns of survey of one group lot; Mr. MacPherson, who is engaged with the Yukon Gold Company, has sent in returns of survey of enlargement of boundaries of 48 placer claims; and I have made for the public, through the administration, surveys of one town lot and 18 group lots.

All of these returns have been examined by me and approved by the Commissioner, except my returns of the triangulation survey, and of the survey of one group lot.

These returns are now under preparation.

In addition to my own surveys mentioned, I spent a total of 18 days during the year in the field in looking up various locations of trails, base lines and lot posts, for the information of the territorial and gold offices.

Attached hereto is a schedule showing particulars of the surveys and returns

mentioned.

OFFICE WORK.

In addition to the examination of the returns shown on the annexed schedule, and the preparation of my own returns, the work of the office has embraced such varied duties as waiting on the public, making blue prints, tracings, sketches, mounting maps,

writing descriptions, correspondence, &c. The public require nearly all of one man's

A special work was the sorting over, examining, indexing and filing of all secondary plans, sketches and notes which had accumulated in the office.

The following list shows some of this work:-

Blue prints made	129
Tracings made	86
Sketches made	55
Descriptions written	21
Maps mounted	15
Secondary plans filed	610
Secondary notes filed	225

Revenue.

The revenue was derived from two sources: (1) From office work, consisting mainly of blue prints, done for the public, and (2) from field surveys made by myself for the public. It was as follows:—

1. Office re	venue	 	 	 \$ 43 00
2. Field re	venue	 	 	 1,045 00
To	tal	 	 	 \$1,088 00

Correspondence.

The correspondence consisted of-

received.											
Total					 					 	333

Office Staff.

On my arrival the staff consisted of J. E. Deslauriers, draughtsman, and J. W. MacKay, clerk. On July 1 Mr. MacKay left on his holidays but did not return. He was replaced by T. J. Boond, draughtsman.

Owing to the amount of work which was in arrears, A. G. Macdonald, draughtsman, was added temporarily to the staff from September 1 to the end of the fiscal year,

when he was retired.

Office Improvements.

The space devoted to the public in front of the counter was too cramped. Accordingly I had the government carpenter extend the counter across the full width of the main draughting room.

A drawing table for the use of the public was provided.

All drawing tables were surface dressed.

A locked cabinet was provided for drawing materials and a safe installed.

The lighting was overhauled and improved.

A new supply room in the attic was fitted up, and our own camp supplies, instruments and bulky stock stored therein.

The dark room in the basement has also been refitted.

With the addition of a small technical library, the Survey Office would be in excellent shape.

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

F. H. KITTO, D.L.S.,

Director of Surveys.

SCHEDULE

Showing returns of surveys received from April 1, 1911, to March 31, 1912.

I.-GROUP LOTS.

Remarks,	Power House lot. Road House lot. Housely, M.C. Housely, M.C. Bayle, M.C. Bayle, M.C. Kitto, M.C. Kitto, M.C. Morgan, M.C. Homestead, M.C. Kitto, M.C. Kitto, M.C. Kitto, M.C. Kitto, M.C. Korth, M.C. Korth, M.C. Keewenaw, C.M.C. Keewenaw, M.C. K
Approved by Commissioner.	Pow
Area in Acres.	18 - 6 - 6 - 6 - 6 - 6 - 6 - 6 - 6 - 6 -
Surveyor.	F. H. Kitto Jas. Gibbon H. G. Dickson.
Date of Survey.	F. H. Kitto. F. H. Kitto. Jas. Gibbon H. G. Dickson 1910 H. G. Dickson
Claimant.	Granville Power Co Charles Fisher Granville Power Co John Lee Malcolm McLarer M. L. P. & C. Co H. G. Dickson Carl Weik
Group.	មានម្នាល់មានប្រមានប្រមានប្រមានប្រមានប្រមានប្រមានប្រមានប្រមានប្រមានប្រមានប្រមានប្រមានប្រមានប្រមានប្រមានប្រមានប្រ
Lot No.	228 228 228 227 227 228 238 238 238 238 238 238 238 238 239 241 177 177 288 288 288 288 288 289 289 289 289 289

King Bee, M.C. J. C., M.C. Vivian, M.C. Vivian, M.C. Vivian, M.C. Skagway, M.C. Vikon, M.C. Shanark, M.C. Zelandian, M.C. Shanrock, M.C. Shanrock, M.C. May Gopper, M.C. May Gopper, M.C. Shanrock, M.C. Colorado, M.C. Ramibler, M.C. Ramibler, M.C. Ramibler, M.C. Ramibler, M.C. Colorado, M.C. Reco, M.C. Reco, M.C. Beeco, M.C. Colorado, M.C. Colorado, M.C. Colorado, M.C. Colorado, M.C. Reco, M.C. Surface lot. Surface lot. Sorth Star, M.C. Svrth Star, M.C. Svrthace lot. Surface lot.
Nov. 23, 1911 Feb. 15, 1912 May 3, 1911 July 11, 1911 Dec. 26, 1911 May 3, 1911 Dec. 26, 1911 Dec. 26, 1911 Dec. 26, 1911 Dec. 26, 1911
28
1910
5. " 6. " 7. O. Williams et al. 6. A. R. Anistan et al. 6. A. R. Anistan et al. 6. " 7. O. Williams et al. 6. " 8. Anistan et al. 9. " 10. Karl Anderson 10. Karl Anderson 10. Karl Anderson 10. Thomas E. Bee et al. 10. Seymour Rowlinson. 10. Thomas E. Bee et al. 10. John McMeekin 10. Thomas E. Bee et al. 10. Thomas E. Bee. 10. Thomas E. Bee.
88.44444444488888888888888888888888888

II.—PLACER CLAIMS.

Claim.	Creek.	Claimant.	Date of Survey.	Surveyor.	Approved by Commis- sioner.
29 below	Hunker	Syndicate Lyonnais	1911	C.W. MacPherson	Sept. 9, 1911
McGee Hillside	Bonanza	Dr. Thompson and	11		,
		Vukon Gold Co		11	Sept. 26, '11
Dickey Hillside	11	Yukon Gold Co		11	11
1 to 6 incl. below	11	11		11	17
1 and 2	Adams		11	11	11
McNamara bench	Bonanza	"		11	11
Miller bench	Adams		11	11	11
Brewster bench	Bonanza		11	11	11
17 to 28 incl. below	0			0	Sept. 28, '11
30 to 33 incl. below		11	11	11	11
1, 2 and 3	Magnet			11	11
1, 2, 3 and 4	American			11	11
1				81	11
3 and 4				- 11	11
Young bench	Fox			11	11
Eckert Hillside			11	11	17
Apenziller bench				31	11
Flloyd bench	Monte Cristo			11	11
Leonard bench	11			- 11	11
McKenzie frac. bench	11		11	19	11
Mosly hill	Bonanza	н	11	11	Oct. 5, 1911
Grill hill		0		19	11

III.—MISCELLANEOUS.

Survey.	Length in Miles.	Date of Survey.	Surveyor.	Approved by Commissioner	Remarks.
Portion of Dawson—White- horse road from Yukon Crossing to Whitehorse Carmack's—Jarvis River Re- ference Traverse; 1911 por-	150:00	1904	C.W. MacPherson	Aug. 23, 1911.	
tion	71.11	1911	H.G. Dickson	Feb. 20, 1912.	
Retracement of part of Base Line on Bonanza Creek	0.72	1911	C.W. MacPherson	Sep. 26, 1911.	Run in connection with placer surveys.

No. 25f.

REPORT OF THE ASSISTANT GOLD COMMISSIONER.

Office of the Assistant Gold Commissioner, Whitehorse, Y.T., April 18, 1912.

George Black, Esq., K.C., Commissioner, Yukon, Dawson, Y.T.

SIR,—I beg to submit the following report in relation to the Whitehorse Mining and Dominion Lands District for the fiscal year ending March 31, 1912. The district embraces the sub-mining districts of Conrad and Kluane, and tables Nos. 1, 2 and 3 show the total collections for the year from each of these respective divisions.

WHITEHORSE DISTRICT.

Beyond the performance of the annual assessment work there have been no operations of moment in connection with any of the quartz claims in this district during the past twelve months. The withdrawal of the Atlas Mining Company from their option on the 'Pueblo' group of claims, mentioned in my report for last year, appears to have had a most depressing effect, and since they withdrew no special effort towards development of any kind has been made. Happily this period of inaction now appears to be drawing to a close. The Atlas Mining Company has again been revived under the management of Mr. W. D. Greenough, who had charge of the work on the 'Pueblo' in 1910, and will shortly start work in probably two different places with strong working gangs. The company have recently secured favourable options on the 'Valerie,' 'Grafter,' 'Best Chance,' 'Pueblo,' 'Le Roi' and 'War Eagle,' all of which may be classed as among the most promising claims on the copper belt—indeed, with two or three exceptions, the only really promising properties on the range so far as surface showings go. Active operations will begin about the first of May, and it is confidently hoped that in a comparatively short time the extent and value of the camp will be amply demonstrated.

Placer mining has been somewhat quiet in the district during the year, the one possible exception being in the case of Nansen Creek, a tributary of the Nisling river situated about twenty-five miles west of Carmack's. There was quite a stampede early last summer and fairly good pay has been reported from one or two points on Nansen and its tributaries, and I believe the interest is still being maintained. This camp was formerly within the Whitehorse district, but was removed therefrom to the Dawson district late last year by order of the administrator. I cannot but believe that this was a mistake, in the interest of the miners concerned. Practically all their other business centres in Whitehorse and many of them have assured me that they would much prefer to have remained attached to this district. I believe they have even petitioned to have the change made. The distance is 132 miles from Whitehorse to Carmack's, while from Carmack's to Dawson is 198 miles, a difference of 66 miles in favour of the former.

There was also quite a stampede during last summer to Judith creek, situated at a point ten miles east of Lake Marsh, and striking in about the middle of the lake. Forty-two claims were recorded on this creek, but little or no effort at development has since been made, and nothing whatever has been produced. I have been told, however,

that two or three miners are now prospecting on this creek. Judith creek can be reached much more easily from Carcross than any other point, and if it is found to produce gold such as would warrant further development it should be placed within the Conrad district.

On Livingstone creek and tributaries things have been unusually quiet throughout the year. The best and most easily worked of the old ground has been pretty well worked out, and general development appears to be in a sort of hesitant stage. However, the miners have absolute faith in the existence of gold in paying quantities at various points and more or less vigorous efforts are being made to locate it.

Smaller stampedes have been made to the country surrounding Aishihic lake and to one or two points on the Kaskawulsh river. Excellent 'prospects' can be found at both these points, but nothing of real value has yet been discovered. There are said

to be extensive deposits of copper in the vicinity of Aishihic lake.

CONRAD DISTRICT.

The operations in this district, which are confined to quartz only, have mainly consisted in the work carried on by two concerns, those of the Yukon District Gold Mines, Limited, on the 'Big Thing' group of claims, and those of Mr. W. J. Fleming, on the 'Porter' group at Carbon Hill, Wheaton river. The former have completed a large working tunnel some three thousand feet long on the 900 foot level, to which several upraises have recently been added. Ore has been struck in one of these upraises about 550 feet from the surface, and this is now being blocked out. The vein has been shown to reach a size of 14 feet in places, while the values heretofore have been well maintained. The company have also installed a large power plant near the mouth of McDonald creek, some four miles from the workings, which they hope will enable them to carry forward the work of the mine with both greater efficiency and greater economy than heretofore.

Mr. Fleming on Carbon Hill has spent a good deal of money in the effort to locate ore at depth. He has still a small gang at work, and it is hoped that they will soon break into ore. There are numerous fine surface showings on this property, and if these are found at depth, there will be no question as to its great value. Mr. Fleming

may install a mill for the treatment of his ore.

KLUANE DISTRICT.

This district appears to have made about the usual progress during the year, but I cannot give details as I have not as yet received a report from the recorder. However, I believe further fairly good pay has been struck on Burwash creek, while Fourth of July, Ruby and Gladstone creeks have produced about the usual quantity of gold. Messrs. Bingham and McKenzie are at present making a vigorous attempt to reach bed-rock on the 60's on Fourth of July, and as they are fitted up pretty well and are energetic, it is expected they will succeed. A good deal of pay has been taken in the past from a falsely supposed bedrock on this creek, but true bedrock has never been reached. Mr. Samson, who operated an hydraulic plant on Virgin creek, on the Kaskawulsh river, last year, has secured options on the best portion of Fourth of July, and expects to give the creek a thorough trial. The plant was moved last winter and will likely be ready for operations at an early date.

Your obedient servant,

R. C. MILLER,

Assistant Gold Commissioner.

TABLE No. 1.

SESSIONAL PAPER No. 25

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.SSION	AL
made_in the office of the Assistant Gold Commissioner and of the Crown Timber and Dominion Lands of Agent, Whitehorse, Y. T., during the fiscal Year, 1911-12.	AL
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n the office of the Assistant Gold Commissioner and of the ent, Whitchorse, Y. T., during the fiscal Year, 1911-12.	
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11	1 NO. 2		cts.	32 42 32 44 33 44	
	Total 1910-11.				000
	Total		* cts.	337 25 3,060 (40 11,238 18 11,270 85 11,900 85 986 37 2,566 77 2,566 77 162 75 891 48 87 50 87 50	
		(tame Licenses.	& cts.		_
Export Tax, Gold.		Free Gold.	\$ cts.	1 50 1 1 00 1 1 50 1 1 50 1 2 50 1 2 50	27
Expor		Royalty.	\$ cts.	161 30 114 31 114 4 01 118 4 74 118 4 74 11 75 25 35 25 35 25 35	200
nd Dues.		Dredging Leases.	ets.	2,000 00	7"
and Lay		ТэбшіТ.	& cts.	75 00 35 00 50 00 115 00 114 50 114 50 50 00 55 00 55 50	100
Timber and Land Dues.	seipts.	Dominion Land	s cts.	2,857 50 245 30 245 30 247 33 47 33 68 03 68 03 3,677 34	600
		Acreage and Crown Grants.	♣ cts.	829 38 175 18 385 00 166 76 98 50 800 37 160 67 74 74	-
		Registered docu-	ets.	25 25 25 25 25 25 25 25 25 25 25 25 25 2	(36)
	Quartz	Payment in Lieu.	s cts.	3 00 00	:
Jues.		Certificate of work.	& cts.	12 50 172 50 172 50 172 50 172 50 172 50 172 50 173	
Mining Dues.		Grants.	ets.	5 00 15 00 10 00 10 00 10 00 10 00	
M		Registered docu-	& cts	10 00 10	
	ú	Renewals.	÷ cts.	10 00 10 10 10 10 10 10 10 10 10 10 10 1	
	Placer	Relocations.	se cts.	10 000	
		Grants,	♣ cts.	100 000 110 000 250 000 420 000 170 000 50 000 50 000 1,500 000 150	
		Month.		April May June July August August September October November Nebenner Hebruary March Totals Number of Receipts	

TABLE No. 2.

STATEMENT showing the collections made in the office of the Mining Recorder for the Conrad District during the Fiscal Year 1911-12.

·	QUARTZ MINING DUES.								Totals,
Months.	Grants.	Certificate of work.	Certificate of part- nership.	Payment in Lieu.	Registered documents.	Acreage & Crown Grants.	Water Grants.	1811-12.	1910-11.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ ets.	\$ cts.	\$ cts.	\$ cts.
April May. June July. August September October November December January February March	20 00	5 00 30 00 17 50 32 50 130 00 57 50 2 50 5 00	5 00 2 50 2 50	100 00 200 00 100 00	27 50 10 00 7 50 25 00 7 50 5 00 25 00 5 00 2 50 2 50 2 50	307 50	50 00	15 00 75 00 42 50 95 00 262 50 337 50 22 50 160 00 45 00 5 00 59 15	52 50 155 00 72 50 330 00 105 00 37 50 35 00 10 00 5 00
Totals	195 00	295 00	12 50	400 00	117 50	364 15	50 00	1,434 15	827 50
Receipts	39	118	5	4	34	18	1	219	318

TABLE No. 3.

STATEMENT showing the collections made in the office of the Mining Recorder for the Kluane District during the eleven months ending February 29, 1912.

Pl	Placer Mining Dues.				Quartz Mining Dues.			Totals
Month.	Relocations.	Renewals.	Registered Decuments.	Grants.	Certificate of Work,	Registered Documents.	1911-12.	1910-11.
	\$ cts.	\$ cts.	\$ ets.	\$ cts.	\$ ets.	\$ cts.	\$ cts.	\$ cts.
April May. June July. August. September. October November December January. February March	20 00 30 00 	20 00 50 00 40 00 160 00 50 00 190 00 10 00 140 00 80 00	70 00 5 00 2 00 2 00 4 00	5 00 5 00	2 50 40 00 20 00	2 50	112 50 90 00 45 00 162 00 79 50 225 00 10 00 4 00 180 00 110 00 20 00	68 50 79 00 80 00 275 50 450 00 283 00 90 00 47 50 150 90 144 00 101 00 62 00
Totals	140 00	740 00	83 00	10 00	26 50	2 50	1,038 00	1,830 50
Receipts	14	74	41	2	18	1	150	204

No. 26.

REPORT OF THE TIMBER AND GRAZING BRANCH.

DEPARTMENT OF THE INTERIOR, OTTAWA, July 22, 1912.

W. W. Corv, Esq., C.M.G., Deputy Minister of the Interior, Ottawa.

SIR,—I have the honour to submit herewith the report of the Timber and Grazing Branch for the fiscal year ending March 31, 1912.

The revenue derived from timber, grazing lands and hay lands for the year amounted to \$486,227.21, being an increase of \$27,011.17 over the previous year.

At the end of this report will be found statement 'A.,' which sets out the total revenue of the branch from its various sources for the year, and statement 'B.,' showing the timber revenue by agencies.

Reports from the Crown Timber Agents at Calgary, Edmonton, Prince Albert, Winnipeg, New Westminster and Kamloops, setting out the revenue collected on Dominion Lands within their respective agencies, and other information, are appended hereto. The report of the Inspector of Crown Timber Agencies above mentioned, together with the ruling price of lumber, the number of mills operated on berths held under license, and the number of portable sawmills in operation, may be summarized as follows:—

Agency.	Total Revenue.	Average price of lumber per M ft. B. M. at mills.	No. of mills operating under license.	No. of portable mills in operation.
Calgary. Edmonton Prince Albert Winnipeg New Westminster Kamloops	\$ cts. 28,091 88 83,254 50 52,989 29 94,869 95 59,412 71 48,162 98	17 00 19 45 16 28 14 50	15 18 20 29 7 8	18 33 23 33 Nil Nil

The returns of operations received show the following quantities of building material as having been manufactured and sold under government license during the year in the timber agencies above referred to:—

	Manufactured	Sold.
Sawn lumber, ft. B.M	240,863,681 85,000	
Shingle bolts, cords. Railway ties	11,093	11,093
Laths.	18,343,253	

The following material was manufactured and sold on permit berths and portable sawmill berths:—

	M'factured.	Sold.
Sawn lumber, ft. B.M. Railway ties.	36,711,956 138,647	21,041,731 129,628

The quantity of lumber manufactured and sold within each agency will be found in the agents' reports appended hereto.

The areas of timber lands held under license and permit in the provinces of Manitoba, Saskatchewan and Alberta, and in the railway belt in the province of British Columbia, on March 31, 1912, were as follows:—

	Under License.	Under Permit.
Manitoba. Alberta Saskatchewan. British Columbia	Sq. Miles. 1,234.51 2,173.98 2,146.63 1,791.76	364.80 39.87 310.02
Total	7,346.88	719.26

Of the area shown above as held under permit, 24.88 square miles are covered by portable sawmill permits issued on berths of one square mile and under, 22.75 square miles by cordwood permits covering one quarter-section, and 148.09 square miles by permits to cut fire-killed timber.

During the year 109 timber berths were granted, of which 34 were portable sawmill berths, 43 cordwood berths, 16 license berths, and 16 berths covering fire-killed timber.

GRAZING LANDS.

The granting of grazing leases is confined to the southern portion of the province of Alberta, the southwestern portion of the province of Saskatchewan, and the Kamloops division of the railway belt in the province of British Columbia. Leases are granted for such lands only as are reported by the inspector of ranches, after inspection, as unfit for agricultural purposes. There are in force 1,424 grazing leases, which include a number of leases issued prior to the granting of leases being restricted to the above described districts. These leases cover a total area of 3,554,297 acres, located as follows:—

	Acres.
Manitoba	945
Saskatchewan	
Alberta	2,001,234
Railway belt, B.C	406,152
-	
Total	3,554,297

OFFICE WORK.

The following is a partial statement of the office work performed at Ottawa during the fiscal year:—

Letters received and recorded (including those pertaining to	
irrigation)	25,754
Letters sent (exclusive of those pertaining to irrigation)	26,563
Plans and sketches prepared	3,884
Cash receipts issued in quadruplicate	1,586
Timber and grazing assignments registered	141
Berths applied for	327
License berths granted	16
Portable sawmill berths granted	34
Cordwood berths granted	43
Fire-killed permit berths granted	16
Licenses for timber berths prepared in duplicate	689
Instructions issued for survey of timber berths	22
Returns of survey of timber berths examined and re-examined.	49
Returns of operating sawmills verified and posted	2,979
Timber permits checked and entered	11,474
Ledger accounts kept posted	906
Seizures checked and entered	300
Fire-guarding accounts posted	741
Applications for grazing lands received	848
Grazing leases issued	348
Applications for hay lands received	67
Ledger accounts kept posted (hay)	4
Ledger accounts kept posted (grazing)	1,424
Hay permits checked and entered	3,437

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

> B. L. YORK, Chief of Branch.

A.—Statement of Revenue for Fiscal Year 1911-12.

	Timber.	Grazing.	Hay.	Fire Tax.	Registration Fees.	Total.
April. May. June July August. September. October. November. December.	\$ cts. 57,892 53 61,002 58 13,650 02 34,783 82 36,787 67 11,251 53 40,827 54 19,313 74 18,379 75	\$ cts. 5,153 23 5,517 39 6,402 99 4,429 82 5,842 80 6,004 29 8,088 78 7,419 69 3,957 87	\$ cts. 2,768 15 1,302 05 2,166 30 2,183 97 804 45 141 60 77 65 45 50 7 60	\$ cts. 3,844 21 2,112 27 2,672 61 49 66 152 70 100 52 343 80 181 45 147 81	\$ cts. 2 00 44 74	\$ cts. 69,660 12 69,979 03 24,891 92 41,447 27 43,628 44 17,497 94 49,378 59 26,968 88 22,494 43
January February March	34,982 85 28,842 45 24,682 44 382,396 92	5,345 66 7,015 92 5,860 97 71,039 41	229 15 11 00 17 40 9,754 22	357 32 1,729 02 11,164 80 22,856 17	19 74 21 87 180 49	40,914 98 37,618 13 41,747 48 486,227 21

B.—Statement of Timber Revenue for Fiscal Year 1911-12.

Agency.	Bonus Under License.	Ground Rent Under License.	Royalty Under License.	Permit Fees, Dues and Rental.	Seizures and Fines.	Total.
Battleford	Under License. \$ cts. 5,262 06 4,288 03	Rent Under License. \$ cts. 5,015 91 1,067 21 3,026 69 5,476 82 6,823 74 312 76 22,435 11 849 80 9,016 66 864 79	Under License. \$ cts. 6,455 75 9,944 68 25,602 56 202 71 14,346 98 22,631 56 222 22	Fees, Dues and Rental. \$ cts. 378 65 25 352 64 25 3,852 52 3,852 52 55,476 99 129 95 152 65 65 25 2,446 73 211 00 214 90 485 05 13,059 25 11,551 75 258 60 5 75	8 cts. 66 00 78 00 3,252 44 2,000 70 5 00 2,260 15 100 00 14 50 445 94 5 00 4,744 06 102 50 7,833 33 53 05	\$ cts. 378 65 418 64 78 25 18,576 62 1,067 21 10,581 14 5 50 75,970 57 5,576 82 129 95 5 50 152 65 79 75 39,607 00 515 47 216 00 485 05 58,481 83 952 30 51,033 30 1,087 26
" collected at head office. Winnipeg. " collected at head office. Yorkton	8,142 47 1,896 43	10,684 58 503 25 4,080 16 50	25,753 56 940 61	37,970 18 396 80 50 50 113 25	400 00 13 00 236 52	409 80 50 50 21,748 29 50

3 GEORGE V., A. 1913 C.—STATEMENT of Revenue of Grazing, Hay, Fire Tax, Registration Fees, year 1911-12.

Agency.	Grazing.	Hay.	Fire Tax.	Registration Fees.	Total.
	S cts.	\$ cts.	\$ ets.	\$ cts.	\$ cts.
Battleford collected at head office Brandon	5 26 5 26 3 20	771 65 2 00 181 00			776 91 7 26 184 20
Calgary collected at head office	3,303 40 4,833 65	311 00 287 65			3,614 40 4,833 65 287 65
Dauphin collected at head office. Edmonton collected at head office collected at head office	3 20	1,648 50 10 00		48 61	9 20 1,697 11 10 00
Estevan	98 91 612 82	357 60 167 70			456 51 612 82 167 70
Grouard	7,172 44	256 40 325 45 41 92		8 00	256 40 325 45 7,222 36
collected at head office	818 15 4,778 44 6,570 56	22 50			818 15 4,800 94 6,570 56
Medicine Hat " collected at head office Moosejaw	*15,177 65 14,278 05 1,991 54	995 70			15,828 65 14,278 C5 2,987 24
" collected at head office New Westminster. collected at head office. Prince Albert.	2,945 65 32 8 26	838 40	16 83	13 50	2,946 65 32 8 26 868 73
Red Deer. Regina. " collected at head office		583 85 131 20	10 00		583 85 131 20 4 45
Saskatoon collected at head office Swift Current.	9 16 2,104 61	724 30 2 00 611 70			724 30 11 16 2,716 31
Winnipeg collected at head office	6,301 21	2 00 583 00 15 40	117 63	110 38	6,303 21 821 51 18 12
Yorkton collected at head office		224 30			224 30 1 00
Fireguarding—Head office		9,754 22	134 46 22,721 71	180 49	81,108 58 22,721 71
	71,039 41	9,754 22	22,856 17	180 49	103,830 29

^{*}Total \$15,177.65 includes \$1,520.00 paid in scrip.

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No. 26a.

REPORT OF THE CROWN TIMBER AGENT AT WINNIPEG.

DEPARTMENT OF THE INTERIOR. CROWN TIMBER OFFICE, WINNIPEG, MANITOBA, June 7, 1912.

J. W. GREENWAY, Esq., Commissioner of Dominion Lands. Ottawa, Ont.

SIR,-I have the honour to submit the following report in connection with the Winnipeg Crown Timber Office for the fiscal year which ended on March 31, 1912. Attached to the report are the following statements, viz.:-

Schedule 'A.' showing receipts from timber, grazing and hay permits on Domin-

ion lands. Total, \$94,869.95.

Schedule 'B.' giving the names of berth bolders operating under license, and the

extent of such operations.

Schedule 'C.' showing the mills operated under permits, including portable sawmills. This statement also shows the quantity of green and fire-killed timber cut under permits on Dominion lands.

Schedule 'D.' furnishing particulars relating to the general work of the office

during the year.

In addition to the timber accounted for in the Schedules 'B.' and 'C.' the following was cut by settlers and others on Dominion lands, viz.:-

SETTLERS' PERMITS.

Number of permits issued to settlers, authorizing the cu-	t-
ting of the following quantity of timber for use on	
their farms, viz	429
Lumber (feet B.M.)	1,720,528
Building logs (lineal feet)	288,364
Fence rails	34,070
Fence posts	47,355
Roof poles	17,080
Number of permits issued to settlers and others under	
Section 42 of the Timber Regulations	793
Covering cords of wood	33,964

CORDWOOD BERTHS.

Number of permits issued on cordwood berths	49
Authorizing the cutting of the following quantity of timber,	viz.:
Cords of wood	17,919
Railway ties	8,500
Fence posts	400

PERMIT BERTHS.

Number of permits issued on permit berths (acquired	
under the old regulations)	_ 45
Authorizing the holders thereof to cut:—	
Cords of wood	26,706

In addition to the above, five permits were granted to railway contrators authorizing the cutting of:—

SEIZURES.

During the past year 45 seizures were made covering timber cut on Dominion lands as follows:—

Lumber (feet B.M.)	1,860,125
Logs (lineal feet)	15,025
Fence posts	5,100
Railway ties	7,975
Laths	1,047,900
Cords of wood	12,830
Telegraph poles	240
Roof poles	81
The dues, including expenses charged in connection with	
these seizures, amounted to	10,035 67
There was one seizure made covering 30 tons of hay, and	
the dues thereon amounted to	30.00

HAY PERMITS.

Number of hay permits on Dominion lands	202
Tons of hav covered thereby	3.901

Your obedient servant,

ANDREW FREEMAN,

Crown Timber Agent.

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sh 31, 1912.	Remarks,	Assignment fees, 6 00 110 38 110 38 110 38 110 38	110 38
ding Marc	Totals.	\$ cts. 11,716 53 13,692 632 13,692 642 14,554 044 4,554 044 4,554 084 19,203 79 5,408 53 5,408 53 19,007 97 1,905 61 2,945 59 8,306 61 2,945 59 8,306 14 8,306 14 8,306 14 9,306 1	94,869 95
d Year en	Fire Guarding Fees.	86 CE 1 13 2 2 3 CE 1 1 1 1 2 2 3 2 3 2 3 3 2 3 3 3 3 4 3 3 3 4 3 3 3 4 3 3 4 3 3 4 3 3 4 3 3 4 3 3 4 3 3 4 3 3 4 3 3 4 3 3 4 3 3 4 3 3 4	117 63
g for Fisca	Hay Permits, Fees and Dues.	\$\\ \begin{array}{c} \text{803} & \text{75} & \text{203} & \text{75} & \text{40} & \text{303} & \text{313} & \text{313} & \text{40} & \text{313} & \text{323} & \text{40} & \text{52} & \text{50} & \text{52} & \t	598 40
at Winnipe	Grazing Lands Ren-	\$ cts. 1 60 1 60 1 10 50 1 10 50 2 72	13 22
Agency	Seizures.	\$ cts. 566 60 1,426 65 2,145 65 2,181 50 2,181 50 876 97 673 41 295 50 29635 67 9,635 67 400 00	10,035 67
wn Timber	Permit Fees, Dues and Rental.	\$ cts. 6, 610 92 2,959 612 2,959 617 2,9659 617 1,214 67 6,119 91 2,665 51 1,502 55 1,511 33 37,970 18	37,970 18
ts from Crc	Royalty Ducs under License.	\$ cts. 1,012 72 2,734 02 2,853 79 4,137 46 4,137 46 4,206 02 3,136 73 2,065 51 1,948 60 1,173 09 25,753 56 25,753 56 35 00	26,694 17
of Receipt	Ground Rent under License.	\$ cts. 3,319 63 1,709 31 1,709 31 1,709 30 1,299 30 32 00 475 35 25 00 25 00	11,187 83
A.—Statement of Receipts from Crown Timber Agency at Winnipeg for Fiscal Year ending March 31, 1912.	Bonus under License.	NOTE.—Bonuses are collected	8,142 47
Вснерике А	Month.	April May. June. July. September October. November. Jeenuary. February. Rarch. April May. June. June. Jun	Grand total

 $\mbox{3 GEORGE V., A. 1913} \\ \mbox{Schedule } \mbox{B.} \mbox{--Showing the sawmills operating within the Winnipeg Agency} \\ \mbox{}$

No.	Mill Owner.	Location of Mill.	Berth No.	Kind of Power.
23	Ottawa Ot	Brandon Durban Joelandic River 7-45-7 W 1st Mill destroyed by fire. Grandview West of Goose Island. Greenbush Erwood No mill Point du Bois. 21-21-1 E Riverton Mill destroyed by fire. Grassy Narrows. Lac du Bonnet Graves Point. 15-19-2 E Mistatim Hudson Bay Junction Madge Lake. 50-20-22 W 1st. Black River Barrows. 12-22-17 W 1st. Greenbush (No mill)	814 986 992 1120 15 1148 1250 960 1101 575 1023 1685 1597 1799 1388 1545 1061 1127 1256 1245 1614 702Blk4 857 965A 1013 1189 824 838 1062 1063 1145 924 1241 964 742 752 716 869 92 823 988 988 1051 1239 888 974 980 27A 976	Steam

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Horse	Capacity	Capacity per Species of timber cut.		Lumber.				
Power.	10 hours.	Species of timoer cats	Manufactured Ft B. M.	Sold Ft. B. M.	On hand Ft. B. M.			
	125,000 125,000 12-15,000 12-15,000 10,000 125,000 20,000 25,000 8,000 10,000 15,000 50,000 50,000 50,000 50,000 50,000	Spruce Spruce and tamarack. Spruce and tamarack. Tamarack and pine Spruce " " Spruce and tamarack."	43,417 5,332,074 5,206,737 2,653,408 2,688,856 253,120 19,100 5,352,957 342.482 300,000 1,136,457 2,050,664 181,122 121,143 318,479 945,820 1,904,448 123,480					
32 250 40 60 50 16	7,000 50,000 20,000 12,000 15,000 5,000	Spruce and tamarack Spruce " Spruce and tamarack Spruce and poplar	858,750 658,501 244,252 93,859 1,411,462 170,113 505,420 59,398	1,410,239 658,501 656,692 93,859 2,452,542 170,113 556,045 67,398 20,000 83,000	878,886			
	5,000	Opruce and popular	51,466,930	48,137,980	122,600 26.432,551			

3 GEORGE V., A. 1913 Schedule B.—Showing the sawmills operating within

lo.		Log Count		Average per Log	Ra	ailway Ti	Laths.		
	Logs cut.	Logs Manufac- tured.	Logs on hand.	per Log Ft. B. M.	Manufac- tured.	Sold.	On hand.	Manu- factured.	Sold.
1 2 3 4 5 6 7 8 9 10 11 2 13 4 15 16 17 8 19 20 1 22 23 4 25 26 27 8 29 30 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	492 77,000 4,272 2,660 81,273 30,971 7,465 350 13,395 78,576 16,512 35,597 74,068 12,400 49,440 39,460 6,031 121,734 6,259 3,945 52,024 222,974 103,508 27,950 2,641 3,091 433	492 75,945 80,093 35,608 53,767 4,918 460 98,293 7,465 12,453 23,234 32,696 7,100 3,000 8,927 26,000 33,301 3,075 10,650 121,328 7,759 19,790 18,775 120,779 97,757 17,175 11,769 4,505 2,462 28,843 3,914 10,209 933	25,000 71,760 2,200 56,858 30,971 13,395 72,280 16,512 36,397 74,968 6,500 4,172 3,031 106,401 57,663 3,756 4,172 3,031 106,401 106,401 11,108	88 70 65 74 50 51 41 54 45 24 48 62 25 33 57 40 49 34 64 34 36 53 53 53 53 53 53 53 53 53 53	13,592	1,201 6,020 3,400	1,315	755,735 60,550 592,015 403,000 403,000 2,447,000 1,758,852 1,343,845 334,342 89,481 500,000	755,735 44,500 289,915 277,000 277,000 5,150 1,312,400 151,142 67,621 693,500
19 50	1,000 4,300	4,300	1,000	34					
	1,079,827	987,775	1,159,407		14,059	11,088	15,307	8,288,270	4,737,420

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the Winnipeg Agency under Government License, etc. - Concluded.

	s	Shingle.	š.	Average price of Lumber per M. ft. Number of Re-	Number of Returns made.	Date of Last	7		
On hand.	Manufactured.		On hand.	Avera of L	Numb	Return.	Remarks.		
16,050 302,100				\$ cts. 16 00 16 52 17 25 18 90 19 33 18 50 12 90 15 82 15 00 16 90 18 91 17 50 18 90 18 00 18 00 18 00	3 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Mar. 31, '12.	16,248 logs written off. Operated by the Durban Lumber Co. Operated by Shaw Bros. Operated by Mutchenbacker Bros. 646 logs written off.		
1,924,700 1,122,235 843,655 183,200 21,860				16 00 17 00 17 00 17 00 17 00 19 20 17 00 	411111111111111111111111111111111111111	Dec. 31, '12. Mar. 31, '12.	Oper. by Beaver Lumber Co., since assigne to Midland Investment Corporation. Cancelled. 3,223 logs written off. 900 logs written off. Operated by Great West Lumber Co. Operated by Tisdale Lumber Co.		

3 GEORGE V., A. 1913

Schedule C.—Showing the mills (including the portable mills) operating within March

No.	Mill Owner.	Location of Mill.	Berth No.	Species of Timber Cut.	Manufactured,	Lumber. Sold Ft. B.M
1 2 3 4 5	Boily, P. E. Bouvier, E. Butson, W. F. do Cockerill, Chas	6-24-1 W 1 Birch River	1897 134SL 1636 1849 1740	Spruce and tamarack Spruce	100,060 72,029 186,800 130,000 159,050	37,029 194,800 130,000
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 30 30 30 30 30 30 30 30 30 30 30 30	Finnsson, S. Fulton, Thos Gannache, A. J. Gunn, D. J. Hale, Eric Hawke, Stewart.	14·24·3 E	1718 1754 1892 1757 1623 1755 1876 1078 L 778 L 1601 1850 1662 1238 L 1588 1775 1893 1748 1809 1763 1872 1751 1576 1576 1576 1576 1576 1576 1576	Spruce and tamarack. Spruce. "Spruce and poplar . Spruce and tamarack. Spruce . Spruce and tamarack. Spruce and tamarack. Spruce . Spruce and poplar. Spruce and poplar. Spruce. "Spruce and tamarack. Poplar and jackpine. Spruce . "Spruce and tamarack. Spruce and tamarack.	31,500 206,184 13,000 19,113 83,000 105,000 78,755 76,000 259,889 247,910 28,064 8,007 133,576 58,000 12,000 35,000 31,827 61,000	188, 342 42,000 32,813 83,000 15,000 55,000 80,098 20,000 259,889 222,910 18,162 41,562 40,480
31	Walstrom, Victor	26-18-17 W 1	1776	Spruce and tamarack	17,000 2,152,764	27,000
32 33 34 35 36 37	Permit Berths. Blackburn & Browning Caverley, Jefferson McArthur Co., Ltd, J.D do Serkan & Smith Tholimet, L Special Permit Berths, cov and Fire Killed I	Porcupine Mtn Lac du Bonnet Siglunes 30-29-13 W 1 ering all Green limber.	1805 966 793 1543 1090 1814	Spruce and tamarack Spruce, tamarack and poplar Spruce and tamarack Spruce	1,714,915 71,400 189,300	71,400 189,300 133,600
38 39 40 41	Great West Lumber Co		1738 1693 1696 1695	Spruce	71,635 15,633 800 97,783	

the Winnipeg Agency, under Government permits, for the Fiscal Year ending 31, 1912.

	:	Log Cour	nt.	r Log,		ay Ties.	ice of or M.D.	rns made.	Date of	
On Hand Ft. B.M.	Logs Cut.	Logs Manu- factured	Logs on Hand.	Average per Log, Ft. B. M.	Manu- factured	Sold.	Average Price of Lumber per M.	No. of Returns made	Last Return.	Remarks.
17,060 35,000 19,910	3,572 2,303 2,915 1,898 6,243	1,176 3,015 1,898	1,127	28 61 61 68 50			\$ cts. 14 00 13 60 13 00 13 00 16 06	1 1 2 2 4	Mar. 31, '12 Sept. 30, '11 Mar. 31, '12	Cancelled.
17,842	2,000 2,986 6,793 	3,879 272 732 2,125	700 1,325	53 47 26			12 00 15 00 15 00 15 00 12 00 20 00 20 00	4 1 4	Nov. 4, '11 Mar. 31, '12 June 30, '11 Mar. 31, '12 June 30, '11	written off. Cancelled. Cancelled.
75,000 6,939 56,000 25,000 9,902	1,800 475 2,900 7,645 6,450 1,596	1,800 1,148 2,400 7,645 6,375 1,401 322 2,055	375	59 68 31 34 38 20 24 65			16 00 18 00 15 33 14 00 16 50 14 00 16 00	1 2 4 3 4 4 1 2 2	Mar. 31, '12 Mar. 30, '11 Sept. 30, '11 Mar. 31, '12	Cancelled.
15,000	2,094 2,149 200 1,780	2,406 250 500 1,000	2,149	24 48 70 31			13 50 18 00 15 00 14 00 15 25 12 00	1 1 4 2 1 4 3	Mar. 4, '12 Sept. 30, '11 June 30, '11 Mar. 31, '12	Cancelled. Cancelled. Cancelled, Cancelled 100 logs written
370,749	59,979	500	20,295	34			14 00	4	81	off. Cancelled.
150,000 1,686,592 1,836,592	7,640 36,934 12,293 56,867	3,400 33,920 2,000 5,300 44,620	4,240 3,014 12,923 19,547	50 35 35	1,367	1,367	16 75 16 50 16 50 17 00	1 4 4 4 1 	Mar. 31, '12	·
					s Rule)	Ft. B.M. 419,567 2,911,968 579,000 24,430 3,934,965		4 4 4 4	Mar. 31, '12	

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Schedule D.—General Office Return of the Crown Timber Agency, Winnipeg, for Fiscal Year ending March 31, 1912.

Particulars.	Number, &c.	As compared with previous year. Increase.	As compared with previous year. Decrease.	Remarks.
Letters received. Letters written. Permits subject to dues issued. Free permits issued Seizures made. Mill returns received and verified Mills operating under government license. Mills operating under government permits. Quantity of lumber manufactured,	29 33	3,322 58 97 56	2	Including land department No separate record kept.
under license (feet)	51,466,930 48,137,980 26,432,551 \$16.28 202	3,328,950	, , , , , , , , , , , , , , , , , , ,	

No. 26b.

REPORT OF THE CROWN TIMBER AGENT AT EDMONTON.

DEPARTMENT OF THE INTERIOR,
DOMINION LANDS AND CROWN TIMBER OFFICE,
EDMONTON, ALBERTA, June 20, 1912.

J. W. Greenway, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

Sir,—I have the honour to submit the annual report of the Edmonton Crown Timber Agency for the financial year ending March 31, 1912.

The past year has been an exceedingly busy one in this agency, the volume of business as well as the revenue having again been almost double that of the previous year, viz.: \$83,254.50, as against \$52,716.80 for the previous year. As will be seen from schedule 'D.' of this report, the increase has been gereral in every branch of the work and there is reason to believe that high water mark has by no means been reached.

While the number of timber seizures shows an increase of forty-one over the previous year, I am satisfied that this is the result of better administration of the regulations, rather than an indication that settlers are cutting more government timber without permits; in fact, I am assured by the inspectors attached to my staff, that there is less trespass cutting than at any previous time.

The feature of the year has been the large number of railway construction permits issued, covering 1,864,364 railway ties and 94,339 lineal feet of piling, for the construction of the Canadian Northern main line and branches, and the Grand Trunk Pacific and Alberta Central lines to the Brazeau coal fields. Owing to the number of unfinished inspections by the various companies, it is not possible to give the actual total of ties cut, but including ties cut on licensed berths, I believe same will exceed 2,000,000. As all applications for permits of this nature have been reported on by my inspectors, prior to issue, there has been less unnecessary destruction of growing timber, the woods have been left in better condition and the needs of the settlers have been conserved.

Logging on the North Saskatchewan river during the year was fortunately carried on without the heavy losses so common in past seasons, and the manufactured product of the three Edmonton mill owners was considerably above the average in quantity.

Several licensed berths have changed hands during the year and operations thereon have either been commenced or are shortly to be started; the heavy demand for lumber from the many new railroad points, which demand cannot legally be supplied by the portable mills, certainly warrants larger operations by licensed berth holders.

As anticipated in my last report, there have been many applications to have timber put up for sale and at the present time over a dozen blocks of timbered land within the agency are being examined with a view to their sale at a later date.

25-i-7½

Timber permits issued during the year covered the followin	g items:—
Sawn lumber, ft. B.M	5,877,689
Bridge and culvert timber, ft. B.M	309,000
Building logs, lineal ft	2,108,983
Mining props, lineal ft	170,200
Piling, lineal ft	94,339
Fence rails	2,152,348
Roof poles	412,848
Fence posts	555,150
Cords of wood	1,3821
Shingles	25,000
Railway ties	1,864,364
Telephone poles	18,244
The year's manufacture of lumber was as follows:—	Ft. B.M.
(a) By licensed berth holders	16,472,600
(b) By permit berth holders	20,138,704
(c) By portable sawmills under settlers' permits, approxi-	
mately	10,000,000
	46,611,304

The average selling price of common lumber was \$17, about \$1 higher than the preceding year.

The following schedules are attached:-

- 'A.'-Statement of receipts.
- 'B.'-Sawmills operating under government license.
- 'C.'-Mills (including portable sawmills) operating under permit.
- 'D.'-General office return.

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

H. D. CLARKE,
Acting Crown Timber Agent.

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Schedule A.—Statement of Receipts from Crown Timber Agency at Edmonton for Fiscal Year ending March 31, 1912.

April \$\frac{1}{12}\$ 486 88 887 09 7,253 15 753 15 585 60 9,965 8	
April \$\frac{1}{12}\$ 486 88 887 09 7,253 15 753 15 585 60 9,965 8	S.
April \(\frac{1}{2}\) \(\frac{486}{2}\) 887 \(\text{09}\) \(\frac{7,253}{253}\) 15 \(\frac{753}{253}\) 15 \(\frac{585}{255}\) 60 \(\frac{1}{255}\) \(\frac{9,965}{255}\) 887 \(\frac{1}{2}\)	ets.
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	51 14 70 12 20 28 14
1912.	11
Totals 5,262 06 3,026 69 9,944 68 55,476 99 2,260 15 1,648 50 48 61 77,667 6	68
Head Office Collections. 1911. April. 1,075 66 May 205 00 June 8 33 July 47 August 8 34 September 129 07 October 4,004 60 November. 1912.	66 33 47 07
January February	69
Totals	82
Grand total 5,262 06 8,503 51 9,944 68 55,476 99 2,360 15 1,658 50 83,254 5	50

3 GEORGE V., A. 1913 Schedule B.—Showing the sawmills operating withing the Edmonton Agency

Vo. Mill Owner.	Location of Mill,	Berth No.	Kind of Power.	Horse Power.
D. R. Fraser & Co	erth. Imonton Igeon Lake Imonton. " " " " " " " " " " " " " " " " " "	9, blocks 5 & 6 " 788 863 887 949 956 963 1008 " 1019 1040 1065 1079 1088 1091 1031 1093 1094 1099 1125 1156 1172 1185 1211 1216 1242 1242 1279 1289 1320 1330 1331 1340 1353 1377 1394 1119 Unmarked logs	Steam.	280 260 260 425 As above 40 As above 90 As above "" "75 35 15 30 75 As above 35 As above

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under Government License for the Fiscal Year ending March 31, 1912.

Capacity			Lumber.	Log Count.			
per 10 hours.	Species of Timber cut.	Manu- factured. Sold.		On hand.	Logs Cut.	Logs Manufac- tured.	Logs on hand.
40.35		Ft. B.M.	Ft. B.M.	Ft. B.M.			0 ***
40 M	Spruce and poplar	915	915			17	351
75 M each		3,220	3,220			64	136
As above. As above. 23	Spruce and pine Spruce and poplar	111	262,431 547,170 111 200,000	219,098	6,840	4,733 11,269 2	467 933
	Spruce and poplar	550,465	550,465		8,921 20,740	10,169	934 20,740
11	U	1,785,299 73,195	2,428,440 73,195	1 100 000	55,407	32,752 1,375	24,149
20 10 7 6	Spruce and pine	1,399,390 186,964 282,060	331,257 208,015 300,130	1,102,069 29,629 248,448	11,080 8,221 18,802	28.370 4,207 7,371	9,674 7,783 3,750
20 As above.	Spruce pine&tamarack Spruce Spruce and poplar	$478,000 \\ 452,338$	906,513 372,435 452,338			18,802 12,700 8,220	
10 35	Pine and tamarack Spruce and pine	206,966 $2,409,293$ $17,735$	28,558 $1,426,310$ $17,735$	178,408 982,983	4,991 67,820	3,144 39,598	1,847 28,222
As above.	Spruce and poplar	308,998	308,998		4,120	5,660	6,667
10 10	#	183,312 26,862 269,100	635, S28 255, 750 60, 565	67,869 208,535	3,682 6,887 15,000	3,420 459 8,000	8,927 10,020 7,004
As above.	11	1,617,514	1,617,514	140,000	25,372	29,444	21,451 41,457
As above.	n	80,152	595,934 33,051	33,651		1,491 623	9,404
10	Spruce and poplar	220 200,000	$\frac{220}{100,000}$	100,000	5,250	3,000	10,925 2,250
	Spruce and pine	1,643,802 309,526	532,208 309,526	1,111,594	9,000	38,080 9,000	14,998
As above.	Spruce and poplar	1,518,209 11,204	1,137,327 11,204	389,882		26,265 214	1,217
10	Spruce	454,540	454,540		387	8,182	8,182 387
11	Spruce and poplar	49,937 34,907 53,464	49,937 34,907		913 630	913 630	
11	Pine	93,464	53,464		1,000	1,000	
		16,472,600	14,300,211	5,518,994	328,141	319,178	241,875

3 GEORGE V., A. 1913 Schedule B.—Showing the sawmills operating within the

No.	Average per		Railway Ties.		Laths.			
NO.	Log.	Manufactured.	Sold.	On hand.	Manu- factured.	Sold.	On hand.	
	Ft. B.M.							
1 2	53·8 50·3				*******			
3	55·4 62·2				••••			
5 6 7	55·0 54·1							
5 6 7 8 9	54·5 53·2				299,699	299,699	Nil	
11 12 13	40 - 3							
14 15 16	44·4 38·2 47·9 37·6 55·0		170					
17 18	65·8 60 8	14,081	14,081	Nil	50,000	Nil.	50,000	
19		3,000	3,000	Nil				
20 21	54.5	25,192	12,820	12,372	432,386	432,386		
20 21 22 23	53·7 57·9							
24 25 26	33·6 54·9	1,841	41,806		837,548	837,548		
24 25 26 27 28 29 30	53·1 53·0							
30 31	55·0 66·6							
32 33 34	43·1 34·4 57·8	2,240 3,920	1,323 2,920	917 1,000	300,000 35,000	100,000	200,000	
35 36 37	52.2							
38		213,066	213,066					
39 40 41	54·6 55·5 52·4							
42		71,056	71,056					
	51.6	334,396	360,242	14,289	1,954,633	1,704,633	250,000	

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Edmonton Agency under Government License, &c.—Concluded.

			1	1	1		
	Shingles.		Average Price of	No. of Returns made.	Date of Last	· Sun	dries.
Manu- factured.	Sold.	On hand.	Lumber per M. ft.	No. of made	Return.	Manu- factured.	Sold.
			\$ cts.				
			15 00	1	Dec. 31, 1911		
			15 00	1	31, 1911		
			15 00	1	" 31, 1911	Piling.	D:1:
			18 50	4	Mar. 31, 1912	2,100	Piling. 7,950
			15 00 12 00	1 4	Dec. 31, 1911 Mar. 31, 1912		
			15 00	1	Dec. 31, 1911		
			15 00	1	11 31, 1911		
			15 00	. 1	31, 1911 31, 1911		
			14 00 14 00	4	Mar. 31, 1912		İ
			18 00	4	" 31, 1912 " 31, 1912		
			14 00	4	n 31, 1912		
••••			17 60 15 00	4	¹¹ 31, 1912 Dec. 31, 1911		
			17 00	4	Mar. 31, 1912		
	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	19 75	4	" 31, 1912	Piling. 30,435	Piling. 30,435 3,000
		** ` * * * * * * * * * * * * * * * * *	3 00	4	" 31, 1912	Cordwood.	Cordwood.
						Piling. 40,908	Piling. 40,908
			15 00	1	Dec. 31, 1911	40,503	40,508
		• • • • • • • • • • • • • • • •	15 00 21 00	$\frac{1}{4}$	" 3l, 1911		
*********			21 00	'1	Mar. 31, 1912	Piling.	Piling.
			15 00	4	" 31, 1912 Dec. 31, 1911	1,305	1,305
			15 00	1 4	Mar. 31, 1911		
			15 00	1	Dec. 31, 1911		
			15 00	$\frac{1}{3}$	" 31, 1911	No.	
			15 00	1	31, 1911 31, 1911	No	operations.
			22 00	4	Mar. 31, 1912	7541	
			18 00	4	" 31, 1912	Piling. 5,400	Piling. 5,400
			18 00	4	и 31, 1912	0,100	0,100
			14 00 15 00	4	и 31, 1912 Dec. 31, 1911		
			15 00	4	Mar. 31, 1912	No	operations.
			16 00	4	ıı 31, 1912	D.II.	
				4	ıı 31, 1912	Piling. 4,970 Hewn Ties	Piling. 4,970 Hewn Ties.
			15 00	1	Dec. 31, 1911	2100	
			15 00 16 00	1	" 31, 191t " 31, 1911		
			10 00	1	,, OI, 1011	Hewn Ties.	Hewn Ties.
				4	Mar. 31, 1912	Piling. 3,065	Piling. 3,065
					Piling	91,183	97,033 300
	,	1					

3 GEORGE V., A. 1913

Schedule C.—Showing the mills (including portable mills) operating within ending

-	-									
2	Mill Owner,	. Location of	Berth	Species of		LUMBER.		Log Count.		т.
Number	Mill Owner,	Mill.	No.	Timber Cut.	Mann- factured. Ft. B. M.	Sold Ft. B.M.	On hand. Ft. B.M.	Logs cut.	Logs Manu- fact'rd.	Logs on hand.
1	D. R. Fraser & Co.	Edmonton	No. 140,064 in lieu of	poplar.	706,703	277,945	486,758	14,001	14,001	
2 3	Jno. Walter	n	No. 812. 1306 Order in Council 10-7-07.			1,498,119 320,744	4,114,448	38,378	80,314 1,017	22,271 16,084
4	Edmonton	n	"	11		50,756				
5	Lumber Co. Empire Supply Co., operations of Jno. Walter	#1	Timber Permit No.		7,169,608	741,107	6,516,653	136,961	131,213	9,797
6	Empire Supply Co., operations of D. R. Fraser	11	140,029	11	279,895	279,895	· · · · · · · · · · · · · · · · · · ·	5,735	5,122	613
8	Co. Henry Meyer J. E. Gibeault. H. A. Calder, operations of	Edmonton	1381			55,206				1,028
10	Jno. Walter	11	1486	Spr'ce & poplar.		271,006		2,364	271	2,093
11	Louis Lagasse	Ponth	1487		2,188	2,482			40	5,498
13	Jno. Walter	Edmonton	1493	11	23,190					
	Hislop & Mc- Phee.		1400	Spr'ce & pine. Spr'ce &						10,000
15	Jno. Walter	Edmonton	,1497	Spr'ce & poplar.	3,581	17,613		· · · · ·	. 82	14,776
	Frank Mearon. E. J. Dowsett.		1562 1599	11	1 '	4,000 24 953	12,000		400	
18	Jn. Zaczkowski Jno. Anderson.		1604		43,768	271,437	208,699		900	
			1647	-		355,081				
20	Alfd. Desautels		1648	Spr'ce & pine.	190,044	190,044		1,876	1,876	
21	Jno. Smith		1649	11	190,043	190,043		1,876	1,876	
22	Jas. Smith	11	1650	11	190,044	190,044		1,876	1,876	
23	Jos. Gibeault	11	1651	11	190,044	190,044		1,878	1,878	
24	E. O. Hanke-dahl.		1652	Spr'ce & poplar.	193,948	167,851	63,283	462	2,432	2,934
25 26	P. Maisoneuve. A. W. de H. Smith.	11	1653 1654	11	26,755 292,096	36,755 294,433		495 4,169	495 4,631	
27	Freeman J. Dodge.		1656		143,000	143,000		4,500	4,500	
28	W. S. Heffer-			Spr'ce &		359,157	201,003			
29	F. C. Papineau	"	1064	Spr'ee & poplar.	349,281	156,155	193,126	11,000	8,500	3,100

SESSIONAL PAPER No. 25

the Edmonton Agency, under Government Permits, for the Fiscal Year March 31, 1912.

Average per Log, Ft. B.M.	R	AILWAY TIE	s.	Average prices of lumber per M. feet.	f returns	Date of last returns.	Sundries.	
Averag Log,	Manu- factured.	Sold.	On hand.	Average of lu M. fo	No. of made.		Sold.	
54.6			••••	\$ ets.	Ĩ	31—12—11	Lath. Manufd. Sold.	
54·5 54·1				15 00 15 00	1 1	11	4,624,014 4,063,525	
				16 00	1	11		
54.5	55,264	55,264		15 00	1	11		
54.6	1,684	1,684		15 00	1			
54.5	••••			11 00 12 00 16 00	1 3 1	$\begin{array}{c} 30 - 6 - 11 \\ 31 - 3 - 12 \\ 31 - 12 - 11 \end{array}$		
40.4			* * * * ; * * * * *	16 00	1	11		
54.7				16 00	1	"		
54.9				12 00 16 00	1 1	31— 3—12 31—12—11		
43.6				15 50	1	31-12-11		
40.0				17 00		30 911		
48·6 57·0				15 00 19 50 11 00	3 4 4	311211 31 312	Piling.	
101.3	3,695	3,695			1	30 611	5,843 5,843 Telegraph Poles. 195 195	
101.3	3,695	3,695			1	17	195 195 Piling. 5,843 5,843	
101 · 3	3,695	3,695			1	n	5843 5,843 Telegraph Poles. 195 195	
101.3	3,697	3,697			1	11	Telegraph Poles. 195 195 Piling.	
79.3				20 00	4	31— 3—12	5,844 5,844	
54·0 52·2				15 00 12 00	3 4	31-12-11 31-3-12	Shingles. 42,500 51,500	
31.7					1	8—12—11		
				24 00	4	31— 3—12		
31.7				13 00	4	11		

3 GEORGE V., A. 1913 Schedule C.—Showing the mills (including portable mills) operating

=										
ú	Mill Owner.	Location of	Berth	Species		Lumbei	3.	Lo	og Coux	NT.
Number.	Mill Owner.	Mill.	No.	Timber Cut.	Manufactured. Ft. B. M.	Sold Ft. B. M.	On hand. Ft. B. M.	Logs cut.	Logs manu- fact'rd	on
	Wm. Brunelle. Shelby D. Reed	H	1691 1719	"	78,000 24,921	150,000 29,474		6,000	2,500	6,000
32	N. N. Bentley.	19	1723	Spr'ce &						
34	D. M. Rourke. J. W. Dodds W. J. Dent	Chip Lake	, 1728 1737 1743	Spr'ce &	50,200	245,000		250		
	Chas. E. Barry.		1744	poplar. Spr'ce &						
37	A. J. Nichol		1745	pine.	1,072,360	996,563	75,797	22,714	20,925	1,789
	D. McKinley W. J. Latimer.	11	1747 1756	Spr'ce &	20,000 128,250	20,000 43,662	84,588	4,300	2,800	
	Emil Baril Hislop & Good-	Entwistle	1773 1774	Spr'ce &	\$0,000 75,000	5,000 75,000		1,800 6,000	1,800 1,500	
	ridge. Louis Lagasse			pine. Spr'ce & poplar.	40,000 50,408		40,000	1,200 1,435	1,200 750	
43 44	O. S. Radway Wm. Humber-	Chip Lake		Spr'ce &				1,000		1,000
45	stone. Geo. Cummings	Berth	1789	pine. Spruce, pine &	436,660	254,973	181,687	8,510	7,895	615
46	The Argonauts		1795	poplar.	191,000	191,000		4,939	4,939	
	Ltd. Jas. H. Woods. J. B. Schofield.	11	1796 1792	Spruce Spr'ce & poplar.	245,000 12,140			3,510 1,663	3,510 245	1,418
	Fred Meyer J. A. L. Mc- Dougall.	11	1881 1806	Spruce	80,000 217,427	20,000 217,427	60,000	3,036 5,671	1,120 5,671	
52 53	Jno. McKinley M. McKinley . Jas. H. Wood, Alex. McDou-	H	1848 1854	Pine Spruce Pine	15,000 243,500	15,000 338,500	5,000		750 2,485	
55	gall. Empire Supply Co. Ld., operations of Edmonton Lumber Co.	Edmonton	Permit No. 140,029	Spr'ce & pine.	2,232,046	1,870,163	361,883	44,905	40,909	3,996
	Totals				20,138,704	11,347,549	12,852,656	353,808	368,478	111,552

within the Edmonton Agency, under Government Permits, &c .- Concluded.

e per 5. Ft. B.	R	AILWAY TI	ES.	Average prices of lumber per M. feet.	No. of returns made.	Date of last returns.	Sundries.
Average per Log. Ft. 1	Manu- factured.	Sold.	On hand.	Average of lun M. fe	No. of made	Date of last returns.	Sold.
				\$ cts.			
25 0 39·9				20 00 11 35	4	. 11	
	800	800					Piling. 9,060 9,060
58.3				12 00	3	31—1211	
				9 00	3 4	31—"3—12	
	12,000	12,000			3	31—12—11	
51.2	5,952	5,052		19 00 12 00	4 1 3	31— 3—12 12— 1—12 31— 3—12	
50.0				17 60 25 00	4 4	11	Shingles. 50,000 24,000
33·3 67·2				17 00	4 4	11 11	
					2	31—12—11	
55.3			[12 50	4	31- 3-12	Shingles. 384,000 88,250
38.6				20 00	1	31—12—11	82,000 82,000
69·8 49·5				27 50 16 00	3	31—"3—12	
71·4 38·3				10 00 15 00	1	31- 5-12	
20·0 90·7	2,000	2,000		19 00 27 50	2 1 1	31—12—11 5— 1—12 31—12—11	
	7,524	7,458	66	15 00	1	3112—11	
						Lath	4,624,014 4,063,525 558,500 245,750 31,433 31,433 780 780
54.6	100,106	100,040	66				

Schedule D.—General Office Return of the Crown Timber Agency, Edmonton, for Fiscal Year ending March 31, 1912.

Particulars.	Numbers, &c.	As compared with previous year. Increase.	As compared with previous. year. Decrease.	Remarks.
Letters received. Letters written. Permits subject to dues issued. Free permits issued. Seizures made. Mill returns received and verified. Mills operating under government license. Mills operating under government permits. Quantity of lumber manufactured, under license. Quantity of lumber sold, under license. Quantity of lumber sold, under license. Average price at which lumber sold. Hay permits issued.	" 413 1,532 62 575 18 33 16,472,600 14,300,211 5,518,994	" 15 145 41 1 1 13 1,356,454 2,142,851 81 00	25	formerly.

No. 26c.

REPORT OF THE CROWN TIMBER AGENT AT CALGARY.

Department of the Interior,

Dominion Lands and Crown Timber Office,

Calgary, Alberta, May 14, 1912.

J. W. GREENWAY, Esq.,

Commissioner of Dominion Lands, Ottawa, Ont.

Sir,—I have the honour to enclose herewith the following statements for the twelve months ending March 31, 1912:

Schedule 'A.' statement of receipts on account of Crown Timber covering the period referred to, amounting to \$28,091.88.

Schedule B. showing the sawmills within the Crown Timber Agency in operation under government license to March 31, 1912.

Schedule 'C.' showing the portable sawmills operated under permit to the same date.

Schedule 'D.' general office work.

You will observe that the quantity manufactured from licensed berths during the twelve months amounted to 21,129,177 feet B.M., quantity sold 14,952,291 feet B.M., manufactured by portable mills under permits 5,317,639 feet B.M., quantity sold 3,860,653, total quantity on hand 16,859,443 feet.

In addition to the 26,446,816 feet B.M. manufactured as above stated, there has probably been about 110,000,000 feet brought into this province from the province of British Columbia and 25,000,000 has been imported from the United States.

i

The lumber trade would appear to be in a prosperous condition.

I would estimate that the quantity of B.M. lumber which the mill owners will require to manufacture this season from logs on hand would amount to 38,602,218 feet.

I may add that \$16.01 per thousand feet B.M. is the average price at which the lumber taken from licensed and permit berths sold during the past year.

Your obedient servant,

W. E. TALBOT.
Crown Timber Agent.

Schedule A.—Statement of Receipts from Crown Timber Agency at Calgary for year ending March 31, 1912.

	Month.	Ground rent under license.	Royalty dues under license.	Permit fees, dues and rental.	Seizures.	Grazing Lands Rentals.	Hay Permits Fees and Dues.	Totals.
	1911.	\$ cts.	\$ ets.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
May. June. July. Augus Septen Octobe Novem	t ober er ober ber 1912.		1,102 59 16 10 07 927 99 219 20 384 77 1,084 75 1,027 38	677 26 189 65 153 91 47 76 812 76 207 11 533 48 187 72 18 15		468 02 175 42 839 78 50 34 136 19 144 87 598 90 165 46 47 99	43 50 12 90 37 10 109 50 91 30 15 20 	2,935 77 4,469 98 1,092 05 1,170 94 1,268 06 586 38 1,517 15 1,437 93 1,889 91
Februa	ry	17 50	383 67 1,309 23	382 76 172 96 469 00	2,876 80	399 60 185 00 91 83		1,166 03 3,234 76 1,922 06
	Totals	5,015 91	6,455 75	3,852 52	3,252 44	3,303 40	311 00	22,191 02
Ay M Ju Ju Ay Se Oo	Office Collections. 1911. pril					224 44 822 49 306 85 359 72 257 91 1,065 95 557 55 303 38 296 31		224 44 1,000 89 1,195 66 359 72 257 91 1,065 95 557 55 303 38 296 31
Fe	nuaryebruaryarch					80 30 178 23 380 52		80 30 178 23 380 52
	Total	1,067 21				4,833 65		5,900 86
	Grand Total	6,083 12	6,455 75	3,852 52	3,252 44	8,137 05	311 00	28,091 88
				,				

SCHEDULE B.—Showing the sawmills operating within the Calgary Agency under Government License for the Fiscal Year ending March 31, 1912.

	Logs on hand.	24,052	126,842	135,254 138,437	42,124	124,417	141,739	38,444	8,098 3,002	789,345	
Log Count.	Logs Manu- factured.	 :	34,327	71,041	42,900	209,66	21,539 1,539 4,066	57,771		541,449	
Lo	Logs Cut.	4,229	107,481	135,254 64,986	10,423	102,551	106,088		8,098 2,500	541,610	
	On hand Ft. B.M.	29,695	444,286	395,624	2,279,316 168,000	.4.	1,061,107	3,024,138		15,952,291 13,397,440	
Lumber.	Sold Ft. B.M.	:	928,914	1,634,119 1,153,065	1,577,198	2,215,725			27,042	15,952,291	19,733 1.ft. 44,454b.m. 72 cords
	Manu- factured Ft. B.M.	:	1,373,200 2,031,858	2,029,743 1,153,065	2,031,859	3,015,076	3,572,705	3,289,301	27,042	21,129,177	12,733 l.ft. 12,733 l.ft. 44,454 b.m. 44,454 b.m. 72 cords 72 cords
Species	of Timber cut.	Spruce	Fir and spruce	Fir, spruce and pine.	Spruce and pine	Fir. spruce and pine.	::	Fir	Fir, spruce and pine.		Dry Mining timber. 12,733 l.ft. 12,733 l.ft. 12,733 l.ft. 12,733 l.ft. 12,734 l.ft. 12,735 l.ft. 13,735 l.ft.
y per 10	Capacit Served	8,000	30,000	35,000 15,000	30,000	35.000	30,000	30,000	15,000 8,000		
ower,	Horse P	32	100	100	75	198	86.	100	348		
Kind of	Power.	Steam.	::	::	::	=	= =	= = :	: : :		:::
	Berth No.	1218	1157	468	253 1299	318E.F.H.I.	579 1327	1384 36A 569	1124 1389		36A 36A 36A
Location of	Mill.	Priddis	Blairmore Red Deer	Calgary	Red Deer Cochrane	Calgary		Blairmore	High River Priddis		Blairmore
	Mill Owner.	Vernon N. De Mille			Pennyfather, Grant&Great West Lumber Co Thomas Quigley		Lineham Lumber Co	Hon, Peter McLaren	Linenam Lumber Co Vernon N. De Mille		Hon. Peter McLaren Blairmore
	No.	1	e1 e5	4 ro	9 7	∞		122	345	2	

SCHEDULE B.—Showing the sawmills operating within the Calgary Agency under Government License, &c.—Concluded.

SESS	SIONAL	PAPER	No. 25
the sawmills operating within the Calgary Agency under Government License, &c.—Concluded.	Domonic	Political NS	Not possible to obtain returns. 4832 posts mfd and sold. 4202 posts sold. Laths over run 4600.
ider Governmer	Date of	Returns Last Return. made.	March 31, 112. Sept. 39, 111. Not March 31, 122. 31, 122. 31, 122. 31, 122. 31, 122. 31, 122. 31, 122. 31, 122. 31, 122. Sept. 39, 11. March, 31, 122. Sanda 31, 122. Sapt. 39, 11. March, 31, 122. Sapt. 31, 122. Sapt. 31, 122.
ency un			+ C) + + + + + + + + + + + C) + + + + +
algary Age	Average Price of Lumber per ft.		\$ cts. 18 30 18 30 19 74 15 09 115 09 116 99 117 31 117 31 117 31 117 46 117 69 117 69
in the C		On hand.	959,050
ting with	Laths.	Sold.	612,400
ills opera		Manu- factured.	244,250
she sawm		On hand.	32:
	Railway Ties.	Sold.	10,014
SCHEDULE B.—Showing	Ra	Manu- factured.	10,046
Scher	Average ner Log	Ft. B.M.	6 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
2	25—i—8		1222423C8201112244

W. E. TALBOT, Crown Timber Agent.

SCHEDULE C.—Showing the mills (including the portable mills) operating within the Calgary Agency, under Government Permits, for the Fiscal Year ending March 31, 1912.

b			3 GEOR	GE V., A. 1913
	Logs on hand.	Nil. 4,700 Nil. 4,700 Nil. 17,630 7,090 13,104 19,566 Nil. 3,715 5,710 250 288	4.673	
Log Count.	Logs Manufact'd.	Nil. 178 Nil. 178 Nil. 2,959 Nil. 6,763 Nil. 8,802 10,520 3,650 3,650 3,685 14,466	97,483	
	Logs Cut.	Nii 570 7,690 46,431 Nii. 533 12,535 9,360 8,335 14,741	104,290	
	On hand Ft. B. M.	70,600 70,600 70,600 86,112 Nil. 6,000 30,023 Nil. 35,929 755,506 4,000 627,139 376,619 105,423 887,656	3,462,003 1. ft. 29,553 56,590	
Lumber.	Sold On hand Pt. B. M.	118,000 81,960 43,245 8,245 146,765 148,158 678,907 Nii. 284,349 493,571 14,577 59,361	3,860,653 L. ft. 25,034 23,020	
	Manuf'd Ft. B. M.	Nil 25,080 Nil 136,273 832,533 Nil 1,748,369 112,717 Nil 640,121 405,351 120,000	5,317,639 I. ft. 24,155 34,498	
Species of Timber	Cut.	1326 Spruce 1406 Spruce 1406 Spruce and fir. 1518 Spruce and fir. 1587 Spruce and pine. 1587 Spruce and pine. 1619 Spruce and pine. 1615 Spruce and pine. 1711 Spruce and pine. 1718 Spruce and pine. 1746 Spruce and pine. 1746 Spruce and pine. 1765 Spruce and pine. 1775 Spruce and pine. 1775 Spruce and pine. 1775 Spruce and pine. 1775 Spruce.	1711 Mining props	
Berth No.		1326 Spruce 1406 Spruce and 1615 Spruce and 1615 Spruce and 1615 Spruce and 1614 Spruce and 1624 Spruce and 1673 Spruce and 1708 Spruce and 1708 Spruce and 1708 Spruce and 1715 Spruce a	1711 17871	
Location of	ii Wali	On Berth Black Diam'nd On Berth Ked Deer Calgary Calgary Coleman	On Berth	,
Mill Owner,		W. R. Dobbie. Arthur G. Spooner Charles Stubbs P. W. Hallvarson. N. T. Hagen John Schrader Francis Dinkocher Royal Collieres. Royal Collieres. G. R. Pelleter G. R. Pelleter Adam Sturn Ead Claire & Bow River Lumb. C Garbondale Lumber Co. J. T. Johanneson. F. T. Johanneson. Featherstone & Mason O. E. S. Whiteside.	G. R. Pelletier J. K. Gram	
ő		12846878912851781		

SCHEDULE C.—Showing the mills (including the portable mills) operating within the Calgary Agency, under Government Permits, &c.—Con.

SIONAL	PAPER	No. 25	_	
C	tvemarks.		31, 1912 10, 461 ft. B. M. Sold during 4 ending 31, 1912 and not shown in last annual report. 31, 1912 and not shown in last annual report. 31, 1912 Berth cancelled.	Used in Mine.
0.00	Date of Tast Return.		March 31, 1912 " 31, 1912 September 30, 1912 March 31, 1912 " 31, 1912 " 31, 1912 December 31, 1912 March 31, 1912 " 31, 1912 " 31, 1912 " 31, 1912 " 31, 1912 " 31, 1912 " 31, 1912	March 31, 1912
Number	Returns. made.		777701777770775	- 1
Average price	or Lumber per M. ft.	& cts.	Nil. 15 03 17 00 17 00 18 15 18 15 18 15 18 25 18 25 18 25 18 25 18 25 17 00 17 00 18 25 17 00 18 25 19 00 11 33 11 33 11 30 11 30 10 br>10 30 10 3	
	On hand.		Nii. 8,953	
Railway Ties.	Sold.		Nil 28,221	
	Manufactured.		Nii. 37,174	
Average	Ft. B. M.		N.I. 14 09 N.I. 123 10 N.I. 39 91 172 72 32 97 82 04 8	
	1 2	-		* * * * * * * * * * * * * * * * * * * *

SCHEDULE D.—General Office Return of the Crown Timber Agency at Calgary, for Fiscal Year ending March 31, 1912.

Particulars.	Number, etc.	As con with prev	opared ious year.	Remarks.
		Increase.	Decrease.	
Letters received. Letters written. Permits subject to dnes issued. Free permits issued. Seizures made. Mill returns received and verified. Millsoperating under Government license. " " " permits. Quantity of lumber manufactured under license. Quantity of lumber sold under license. " " on hand, " Average price at which lumber sold. Hay permits issued.	18 21,129,177 15,952,291 13,397,440 \$16 01	3,270 8,098 Nil. 5 Nil. 3,093,679 569,735 5,139,295 \$2 07 70		Including Dom. Lands.

i

No. 26d.

REPORT OF THE CROWN TIMBER AGENT AT PRINCE ALBERT.

DEPARTMENT OF THE INTERIOR,
CROWN TIMBER OFFICE,
PRINCE ALBERT, SASKATCHEWAN, July 13, 1912.

J. W. Greenway, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

Sir,—I beg to submit herewith a report of the business of the Prince Albert Crown Timber Agency for the year ending March 31, last.

The sales of lumber manufactured under license amount to 47,516,621 ft. B.M., an increase of 13,571,816 ft. B.M. over last year. The average price was \$19.45 per thousand feet, a decrease of \$1.12½ per thousand ft. The total manufacture of lumber under license amounted to 77,469,595 ft. B.M., being 43,524,790 in excess of previous year. During the past winter, 1,057,233 more logs were cut than last year. This logging was done principally by the Prince Albert Lumber Company and the Big River Lumber Company on the Timber Berths held by them that had been burnt over, in order to save the timber. The mill at Big River has been in operation for some time now and the Finger Lumber Company's mill is also completed and in operation, and I expect a large increase in manufacturing of lumber this year.

The number of permits issued is 1,509 against 1,149 for the previous year. These

permits cover the following quantities of timber:-

Lumber, feet B.M., 6.103,426; logs, lineal feet, 1,062,488; cordwood, 33,312\frac{3}{4} cords; fence posts, 396,875; fence rails, 1,631,605; roof poles, 323,733; shingles, 500,000; railway ties, 14,300.

The number of seizures made during the year was 55, and covered the following quantity of timber:—Lumber, feet B.M., 4,769,881; logs, lineal feet, 4,412; lath, 363,-600; shingles, 200,000; posts, 200; cordwood, 168; roof poles, 90.

The number of hay permits issued for the year amounted to 290, covering 4,194

tons.

The total receipts for the year amounted to \$52,989.29.

Your obedient servant,

W. S. McKECHNIE, Crown Timber Agent.

SCHEDULE A.—Statement of Receipts from Crown Timber Agency at Prince Albert, for fiscal Year ending March 31, 1912.

		3 GEORGE V., A. I	
Remarks,	\$13 50 fee for gr. plan and notes included. \$13 50 fee for gr. plan and notes included.		\$13 50 fee for gr. plan and notes included.
Totals.	\$ cts. 5,281 51 7,052 04 1,316 68 6,472 83 7,42 83 7,586 43 1,448 12 4,027 83 8,541 22 2,033 91 1,747 91	205 37 302 47 186 39 353 03 1,087 26	65,989 29
Fire guarding fees,	55 ES SS: CES		16 83
Hay permits fees and dues.	8 cts. 327 90 733 10 112 60 85 60 90 60 1 20 1 20 838 40		838 40
Seizures.	\$ cts. 1,755 80 1,059 85 1,059 85 2,511 08 9,95 1,77 80 96 35 819 57 781 06 411 45		7,833 33
Permit fees, dues and rental.	\$ cts. 680 85 680 85 91 61 133 67 1,387 810 66 1,073 82 8,327 60 1,072 63 1,336 46 11.551 75	25.	11,552 00
Royalty dues under license.	\$ cts. 2,172 49 5,069 27 1,556 00 6,979 49 6,104 08 1,46 95	222 22	22,853 78
Ground rent under license.	\$ cts. 2,100 27 5,121 53 985 36 195 30 614 20	205 37 80 00 186 39 398 03 . 864 79	9,881 45
Month.	April May. June. Juny. Angust. September. October November. December. January. February March Totals.	tions—	Grand Totals.

SESSIONAL PAPER No. 25 SCHEDULE B.—Showing the Sawmills operating within the Prince Albert Agency under Government License for the Fiscal Year ending March 31, 1912.

Logs on hand.		340,250 1-11,423 48,189 24,8189 78,113 259,624 80,203 41,334 61,334 61,334 61,334 756 85,756	3,052,278
Logs Mann- factured.		294,335 94,531 758 1123,360 91,970 45,061 43,690 43,690 43,690 43,690 43,690 43,690 43,690 43,690 43,690 43,690	1,481,636
Logs cut.		340,250 111,423 17,099 259,624 50,200 41,331 78,816 78,816 35,312 212,023 132,925 (634,675 628,331	2,625,862
On hand.	Ft. B.M.	765,431 8,104,966 6,024,588 6,182,119 150,234	36,799,450
Sold.	Ft. B.M.	18,042,740 1,450,723 1,450,723 2,960,589 5,112,245 1,471,516 2,621,400 353,914 9,567,751	47,516,621
Mann-factured.	Ft. B.M.	18,042,740 6,701,174 44,686 8,104,966 6,042,588 2,960,589 1,139,293 2,621,400 561,148 25,756,654	77,469,595
Timber cut.		Whitee	
per 10 hours.		160,000 35,000 35,000 200,000	:
Horse Po		200 200 250 700 1,600	:
Power.		Steam Steam Steam Steam	:
Berth 180.		66A 474 633 633 9 Block 2. 9 Block 3. 729 729 729 729 729 729 729 729 729 729	
Location of Mill.		Prince Albert. Surgeon Jake Crooked River. Le Pas Big River	:
MIH Owner:		Pr. Albert Lamber Co. Ltd. Sturgeon Lake Lamb, Co. Saskatchewan Lamb, Co. Starker Lamber Co. Ltd. A. Ballantine	Totals
	Dower. Power. Power. Timier Mann- Sold. On hand. Logs cut. Mann- factured.	Mill. Berth No. Power. Timiber Mann-factured. Sold. On hand. Logs cut. Rann-factured. Ft. B.M. Ft. B.M. Ft. B.M.	Pr. Albert Lamber Co. Ltd. Prince Aibert Prince Aibert

3 GEORGE V., A. 1913

SCHEDULE B.—Showing the Sawmills operating within the Prince Albert Agency under Government License for the Fiscal Year ending March 31, 1912—Concluded.

G. Proceedings	remarks.						Logs burned.	-			
Date of Last	Return.		March 31, 1912		= =				= = :		
Number	Returns made.		चा चा चा च	† ਚਾਂ ਜ	+ 	† ਚਾ ਚਾ ਚ	ਾ ਜਾ ਜਾ ਜ	चि	-	4 171	80
Average Price	Lumber per M. ft.	ets.	19 6 <u>2</u> 17 81			18 17	20 00	18 50 22 35		17 84	19 45
	On hand.				230,300		816,500				1,046,800
Laths.	Sold.		3,003,300	6,200	1,496,250		574,250				6,628,600
	Mann- factured.		3,003,300	6,200	1,726,550						6,284,650
rô.	On hand.								:		43,461
Railway Ties.	Sold.								8,839		8,839
Rŝ	Mann- factured.								2,300		2,300
Average	per Log.	Ft. B.M.	61.3	28.0	65.7	65.7	13 54.3	126		38.7	52.3

SESSIONAL PAPER No. 25 SCHEBULE C.--Showing the mills (including the Portable Mills) operating within the Prince Albert Agency, under Government Permits, for the fiscal year ending March 31, 1912.

SI	ONAL	- PAPER N	10. 25											
		Remarks.		30, '11 Berth cancelled, 27- 11-11. 30, '11 Berth cancelled, 24-	11. Lumber used in con- 11. struction. 11. Shortage in inven-	tory, including 19,321 feet. Only shingles manu-	factured.	1, '12 Berth cancelled, 27- 1, '12 + 12.	Berth cancelled, 18- 11-11, including 10 000 feet burned	10,000 to 100.00		Only shingles manufactured.		
		Date of Last Return.		Sept. 30, '11 Nov. 30, '11	33, 33, 33, 4	Mar. 31, '12	Mar. 31, '12		್ಣ ನಿ ಕ್ಷಾ	र्जिल जिल्ला इ.स.च्या	" 31, 12 " 31, 12 No returns	yet No returns	=	
1	-9H	Number of		ကက	क्ष च च	٠ ت	44	ω+E	e) -		:	::	:	52
	.17 Te	Average Pr lumber pe feet,	s cts.	17 66	13 75 17 00 20 37	18 67	20 00	2 4 7 7 2 8 8 8 8				: :		18 67
		Average pe	Ft. B.M.	70	63°2 39°7	† 6 †			27.38		46.55	: :		45.12
	ئب	Logs on			4,329	4,750	7,00	625, 4 625, 4 625, 4 625, 4	:	5,290				41,654
	Log Count.	Logs man- ufactured.		1,250	_ :	7,710		6,356			198'6	: :		67,427
	Lo	Logs cut.			4,123 13,500		- 10g	9,976,976	1,300	5,290	9,864	: :		66,751
		On hand.	Ft. B.M.		82,493 55,000	239,202		• •	•		393,504			Totals. 3,042,269 2,602,325 1,285,497
	Lumber.	Sold.	Ft. B.M. Ft. B.M. Ft. B.M.	215,926	77.42	285,128	:	∺87.			65,633			2,602,325
		Manufac- tured.	Ft. B.M.	87,500	385,369	381,030	310,000	350,243 226,218 105,610	35,596		459,137			3,042,269
		Species of Timber cut.		1554 Spruce		= =	= =	===			= + =		=	Totals.
		Berth Zo.		1554		1561 1605	876 1641		1777		1906 1855 1955	1878 1880	1898	
		Location of Mill.		S.W 2-48-13 W 2. Mistatim		30-51-4 W. 3	15 50-27 W. 2	Melfort	t Lum. N. E. 33-48-18W. 2.		N. Ł. 4-36-50-14 W. 2 N. E. 4-35-55-25 W. 8 5-43-11 W. 2	N. E. 4-10-50-4 W. 3	E. § 16-55-22 W 3.	
	1	Mill Owner.		1 Carrot Riv. Lumber Co. Cowan Construction Co.		6 George Garner	8 Shell River Lumber Co 9 M. W. Cazakoff.	10 Chas. Shaw	13 L. Hennickson 14 Prince Albert Lum.		 J. E. Cunningham N 4-36-50-14 W. 2 B. R. Person N. E. 1-35-55-25 W.3 Warren Shaw 5-43-11 W. 2 	22 John Weiss & Co., 31-55-21 W.	23 C. Hemmelgan E. 4 16-55-22	
		Number.		1 2	ಚಿತ್ರಾ	91-1	တ ာ	222	三四二	557	222	22	23	

Schedule D.—General Office Return of the Crown Timber Agency, Prince Albert, for the Year ending March 31, 1912.

Particulars.	Number, &c.	As compared with previous year. Increase.	As compared with previous year. Decrease.
Letters received Letters written Permits subject to dues issued Free permits issued Seizures made. Mill returns received and verified Mills operating under government liceuse. " permits. Quantity of lumber manufactured, under license. " " sold under license. " " on hand, under license Average price at which lumber sold. Hay permits issued.	20 23 77,469,595 47,516,621 36,799,450 \$19.45	6,536 22 366 17 28 2 5 43,524,790 13,860,420 29,952,704	3,924 \$1.12\frac{1}{2}

No. 26e.

REPORT OF THE CROWN TIMBER AGENT AT NEW WESTMINSTER.

Department of the Interior,

Dominion Lands and Crown Timber Office,

New Westminster, B.C., May 17, 1912.

J. W. Greenway, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

SIR,—I have the privilege of submitting herewith the annual report of this agency for the fiscal year ended March 31, last, with which is enclosed statement on form No. 'A.' showing the revenue collected to be \$59,412.71. This shows a decrease of \$61,103.20 from the preceding year, which must not, however, be taken to indicate that the lumbering industry has been less active during the last fiscal year than in the preceding one, instead this is explained by the reduced area within this agency, the eastern boundary of which was fixed in the month of June, 1911, at the dividing line between townships 10 and 11, west of the 6th meridian, instead of the dividing line between townships 15 and 16, west of the 6th meridian, also by the fact that in the fiscal year ended March 31, 1911, the sum of \$34,536.12 was received on account of bonus on timber berths sold, while last year the revenue from this source was only \$3,866.43. Form 'B.' gives a list of the holders of timber berths being operated together with the extent of such operations, and shows that from twenty-eight timber berths, there were produced the following: -27,413,121 feet B.M. of saw logs, 699½ cords of wood, 38,825 lineal feet of piling and poles, and 8,28624s cords of shingle bolts. The quantity of saw logs cut shows an increase of 6,589,396 feet B.M. over the previous year, while the other classes of timber show a substantial increase. Under permits issued to homesteaders the following timber was cut:-1,065,679 feet B.M. of saw logs, 4,570 lineal

feet of poles and piling, 4 cords of wood, 1,000 pieces of railway ties and 300 fence posts. From lands sold and where the timber has been reserved to the Crown, there was taken under permits issued under Section 14 of the regulations for the survey, administration, disposal and management of Dominion lands within the railway belt in the province of British Columbia, 6,366,589 feet B.M. of saw logs, 1,961 cords of shingle bolts, 29,285 lineal feet of piling and poles, 200 cords of wood and 1,000 pieces of fence posts. Permits issued under Section 47 of the Timber Regulations to cut shingle bolts on vacant Dominion lands accounted for 1,054 cords. The following quantity of timber was seized on account of having been cut in trespass:-4,428,485 feet B.M. of saw logs, 3,267 cords of shingle bolts, 84,920 lineal feet of piling and poles, 8,933 pieces of railway ties and 7½ cords of wood. In addition to the above there was cut under permit from lands being cleared at Coquitlam lake in connection with the building of a dam for power purposes at that point, 6,980,853 feet B.M., making the grand total cut of timber from lands within this agency, 46,254,727 feet B.M. of saw logs, 911 cords of wood. 15,596 cords of shingle bolts, 157,600 lineal feet of piling and poles, 9,933 pieces of railway ties and 1,300 pieces of fence posts. Form 'D.' shows the general work of the agency to compare favourably with former years. Since my appointment as crown timber agent on January 22, last, I have in the course of my duties, touched upon all parts of the agency and everywhere there is abundant evidence of the general prosperity which prevails, all industries working to their full capacity and many, particularly sawmills, operating both night and day in order to cope with the demands. In this report I wish to state that on taking over the duties of my office. I found the work up to date and Mr. Walmsly, who acted as agent for about one year prior to my entering the service, has since given me most valuable advice and assistance in connection with the duties. The other members of the staff have continued to give most careful and conscientious attention to their respective duties.

Your obedient servant,

E. W. BECKETT.

Crown Timber Agent.

3 GEORGE V., A. 1913

1.1				3 (GEORGE V., A. 1913
Receipts from Crown Timber Agency at New Westminster, B.C., for Fiscal Year ending March 31, 1911.	Remarks.				
iscal Year e	Totals.	\$ cts. 7.821 09 15,348 62 1,257 04 6,764 65 2,652 86 5,26 25 2,759 86 5,769 86 5,769 86 5,769 88 5,769 88 5,769 88 5,769 88	5,040 12 1,516 62 6,100 07 58,452 15	100 00 839 98 10 40	960 56 58,452 15 960 56 960 56
B.C., for F	Grazing Lands Rentals.	% CE	33	7 90	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
stminster,	Seizures.	\$ cts. 1,247 47 209 53 329 50 505 00 281 10 477 18 289 00	304 60 1,077 59 23 10 4,744 06	100 00	102 50 4,744 06 102 50 4,846 56
t New We	Permit Fees, Dues and Rental.	↔ 44 44	1,260 24 187 40 538 77 13,059 25		13,059 25
r Agency a	Royalty Dues under License.	\$ cts. 1,083 48 1,561 07 6 21 6 21 580 65 580 65 1,446 77 1,446 77 2,167 02 1,446 77 2,167 02 1,446 77 2,167 02	3,475 28 198 27 1,456 75 14,346 98		14,346 98
own Timbe	Fround rent under License.	\$ cts. 5,467 18 5,487 18 5,891 84 5,17 92 1,563 94 1,369 92 2,615 2,10 1,444 00	53 36 1,481 45 22,435 11	86 688	9 82 849 80 22,435 11 849 80
ots from Cr	Bonus under License.	.s. cts.	2,600 00		3,866 43
SCHEDULE A.—Statement of Receip	. Month.	April May June June August Soptember October December 1912	January Pelenuary March Totals	Head Office Collections— April May June July August September October November	January February March Totals New Westminster Head Office

SCHEDULE B.—Showing the Sawmills operating within the New Westminster, B.C., Agency under Government License for the Fiscal Year ending March 31, 1912.

JINAL I	APER No. 2	3	
1	On hand.	Ft. B.M.	Ž : : : : : : : : : : : : : : : : : : :
LUMBER.	Sold.	Ft. B.M.	1,191,486 1,191,480 201,120 4,098,405 142,000 5,143,058 373,664 1,193,164 1,
T	Manufac- tured.	Ft. B.M. Ft. B.M.	1,1737, 486 1,191, 422 1,191, 422 4,008, 406 142, 000 142, 000 142, 000 142, 000 142, 000 143, 000 143
	Capa- city per 10 hours		Fir, cedar, spruce, hemlock and pine Fir, cedar and lieuilock Fir cedar and hemlock Fir and cedar Fir and cedar Maple and alder Fir and cedar
•	Capa- city per 10 hours		125,000 (60,000 (90,000 125,000 125,000 125,000 30,000
	Horse Power.		750 750 750 750 750 750
	Kind of Power.		314 Mill und 534 Steam 304 " 111 " 111 " 225 " 236 " 234 " 234 " 234 " 24
	Berth No,		X 208 and 314 86 and 304 8. 44, 77, 319 and 526 11, 0 and 311 13, and 299 270 384 285 296 A. 223 223 226 A. 2286
	Location of Mill.		Ruskin O. Harrison River. New Westminster. Sapperton Vancouver. Hazdinere. No mill. " " " " " " " " " " " " " " " " " "
	Mill Owner.		1 E. H. Heaps & Co. 2 Harrison River Mills T. & T. Co. 3 B. C. Mills T. & T. Co. 4 Brunette Sawmill Co. 5 British Canadian Lamber Co. 6 Gampboll River Lumber Co. 7 Vancouver Power Co. 7 Vancouver Power Co. 8 W. R. Speneer. 9 M. G. Jeffris. 10 Brittingham & Young Co. 11 Lohn Oliver. 12 Leonard Lampert. 13 Independent Lumber Co. 14 Vachou & Dum. 15 J. D. Kennedy. 16 A. R. Baker. 17 North Pacific Lumber Co. 18 Lamont Bros.
	Number.	1	- 01 x 4 x 3 f - 8 x 0 1 2 x 2 4 x 2 5 f - 8

SCHEDULE B.—Showing the Sawmills operating within the New Westminster, B.C., Agency under Government License, &c.—Con.

3 GEORGE V., A. 1913

						3	GEU
	Remarks.		Shingle Bolts \$5 per	Cont	<u>.</u>	Shingle mill 5 permits issued.	
Data	Las		12 Mar. 31, 1912 4 " "			= = =	
Returns	Number of made.			∞ ∞ ∞ 11 4 +			
Average	price of Lumber per M. ft.		\$14.50 per M	#3 per cord \$14.50 per N	10c. per l. ft. 314.50 per M	#3 per cord	
rs.	On hand.		Z = = =			::::	
SHINGLE BOLTS.	Sold.		663 4 Nil. 51413	1,400 4 3,7045 3025 4281 Nil.		" 351 Nil. 921	8,28625
SHING	Manufac- bernt		663 4 Nil. "1418	1,4003 3,7045 3025 4283 Nil.		" 351 Nil. 921	8,28648
HLING	On hand.		Nii.	:::::		= = = =	
L FRET OF PAND POLES.	Sold.		2,034 Nil. 23,725	Nil. 450 80 Nil. 8,250	2,756 1,530 Nil.		38,825
LINEAL FEET OF PILING AND POLES.	Manufac- tured.		2,034 Nil. "3,725	Nil. 450 80 Nil. "8,250	2,756 1,530 Nil.		38,825
700D.	On hand.		Nil.			: : : :	
CORDS OF WOOD.	Sold.		Nil. " 176	Nil. 165 Nil. 3283 Nil.		Nii.	609 ²
CORD	Manufac- tured.		Nil. " . 176	Nil. 165 Nit. 328½ Nil.			669
	Average per log.	Ft. B.M.	691.71 648.92 995.64 1,190.70	1,339.62 642.68 839.27 190.45	191.90	1,750°00 1,027°31 1,709°45	
	Logs on hand.		Zii.		= = =		
Log Count.	Logs Manufac- tured.		21,306 1,836 202 3,442	106 813 6,128 1,962 Nii.	Nil. 26	93 84 Nil. 197	36,702
Ĭ	Logs.		21,306 1,836 202 3,442	106 813 6,128 1,962 Nil.	109 Nil.	93 84 Nii 197	36,702
	Number,		H01004	29878	TRRT	18112	•

E. W. BECKETT, Crown Timber Agent.

SCHEDULE D.—General Office Return of the Crown Timber Agency, New Westminster, B.C., for Fiscal Year ending March 31, 1912.

Particulars.	Number, &c.	As compared with previous year.	As compared with previous year.
Letters received Letters written Permits subject to dues issued. Free permits issued. Seizures made. Mill returns received and verified. Mills operating under government license. Quantity of Lumber manufactured, under license " " sold, under license. " " on hand, under license. Average price at which lumber sold. Hay permits issued.	3,639 4,206 49 1 31 823 7 N1l. 27,413,121 27,413,121 Nil. \$14.50 Nil.	Nil. Nil. 6,589,396 6,589,396 Nil. \$0.50	Decrease. 205 12 25 Nil. Nil. Nil.

No. 26f.

REPORT OF CROWN TIMBER AGENT AT KAMLOOPS.

Department of the Interior,

Dominion Lands and Crown Timber Office,

Kamloops, B.C., July 16, 1912.

J. W. Greenway, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

SIR,—I have the honour to submit a report of the Kamloops Crown Timber Agency for the Fiscal year ended March 31, 1912. The below mentioned statements have been forwarded to the department under separate cover, viz:—

Schedule 'A.' being a statement of receipts from Timber, Grazing and Irriga-

tion Branch.

Schedule 'B.' showing the sawmills operating under government license.

Schedule 'D.' general office return.

From these it will be seen that 46,912,258 feet B.M. of logs were cut on Dominion berths within this agency during the season of 1911-12, the royalty dues thereon amounting to \$25,602.56. Ground rentals on timber berths approximated \$6,871.74.

Five seizures, covering 500,814 feet B.M. of logs and 62 cords of wood, were made

and fines amounting to \$445.94 collected in connection therewith.

The average selling price of lumber in this district was \$14.63 per thousand.

During the year, 180 permits, covering 5,101,443 feet B.M. of sawlogs, 11,585 fence rails, 5,535 fence posts, and 5,876 cords of wood, were issued to settlers applying. From this source was derived a revenue of \$2,446.73, constituting an increase of \$838.85 as compared with 1910-11. Twelve permits covering 207 tons of hay, were also issued to settlers.

Two new timber berths were sold at this agency during the past year, realizing the sums of \$3,747 and \$494 respectively, which was practically the upset price in

each case. One berth offered was not sold.

A general comparison of the receipts of the Timber Branch for 1911-12 with those for former years, cannot be made at this date, as, prior to June, 1911, the timber berths now dealt with by the Kamloops agency were administered from the Crown

Timber Agency at Revelstoke, B.C., which has been closed.

Owing to the heavy stock carried prior to 1911 by the licensees in some cases, a few of the latter were compelled to curtail operations somewhat during the past winter, with the result that a number of berths were not cut over sufficiently to comply with the requirements of the department. This necessitated charging increased rental on such berths as had been held for a period over that allowed for inactivity by the department. These stocks have since been reduced, and I am led to believe that an improvement in the sales, resulting in increased operations, will take place in the near future.

Your obedient servant,

W. C. COWELL, Crown Timber Agent.

SESSIONAL PAPER No. 25

12.	Totals.	\$ cts. 960 98 408 21 2,891 00 12,389 99 13,389 99 1,078 03 1,078 03 7,577 76 2,311 95	967 53 6,843 62 1,965 98	46,829 36	31 55 62 32 62 32 62 32 62 32 63 33 16 73 16 73 20 69 36 65 72 20 83 65 47 17 47 17 84 102 98
arch 31, 191	Registration	## CS 00 00 00 00 00 00 00 00 00 00 00 00 00	2 00	8 00	S 60
r ending M	Hay Permits Fees and Dues.	68 CG S CG		41 92	41 92
Fiscal Yea	Grazing Lands Rentals.	\$ c68. 792 88 375 76 293 55 274 64 7712 45 7712 45 7712 45 692 71 692 71	581 15 370 96 643 66	7,172 44	31 55 62 32 58 69 58 69 16 73 16 73 16 103 63 45 7 93 63 45 88 45 818 15 7 93 63 45 7 93 63 45 7 93 64 492 818 15 7 990 59
nloops, for	Seizures.	\$ cts. 139 00 10 00 4 50	292 44	445 94	445 94
ney at Kar	Permit Fees, Dues and Rental.	8 cts. 19 10 10 10 10 10 10 10 10 10 10 10 10 10	103 50 685 50 246 50	2,446 73	2,446 73
imber Age	Royalty Dues under License,	\$ cts. 1,722 86 3,418 63 8,914 10 1,8 98 6,660 74 1,346 20	282 88 3,410 61 647 56	25,602 56	200 80 200 80 1 91 202 71 205,805 27
n Crown T	Ground Rent under License.	8 cts. 14 69 6.015 25 8 8 9 9 5 5 8 9 9 5 5 8 9 9 5 5 8 9 9 5 5 8 9 9 5 5 8 9 9 5 5 8 9 9 9 5 5 8 9 9 9 5 5 8 9 9 9 5 5 8 9 9 9 9	9 05	6,823 74	10 25 29 20 75 31 312 76 7,136 50
Receipts fron	Bonus under License,	-Bonnses are collected at Head Office.	Note:	4,288 03	4,238 03
Schedule A.—Statement of Receipts from Crown Timber Agency at Kamloops, for Fiscal Year ending March 31,		April May May June Angly Angust September November December 1912.	January. February March	Totals.	Head Office Collections— April. May. Juns. Juns. Juns. Junst. September. November. November. Pebruary February Totals. Grand Total.

3 GEORGE V., A. 1913

SCHEDULE B.—Showing the Sawmills operating within the Kamloops Agency under Government License for the Fiscal Year ending March 31, 1912.

Lumber.	Manu- factured.	F. B.M.	11,206,430	2,364,307	17,940,063 13,326,301	1,237,713	345,687	491,757	46,912,258
Spraine of Window out	ano isomi a manada		65 M Cedar, pine, spruce, hemlock, 11,206,430 fir, cottonwood.	135 M Fir, cedar, spruce	65 to 70 M Ceder, pine, fir, hemlock 80 M Hemlock, tamarack, cedar,	Fir, hemlock, cedar, spruce,	40 M Cedar, hemlock, fir, pine,	Spruce. 17 M Fir, jackpine	
Capacity	10 hours.		65 M	135 M	65 to 70 M 80 M	100 M	40 M	30 M 17 M 40 M	
Horse			750	1,300	. 500	1,000	220	100 125 125	
Kind	of Power.		112 113 Steam	Electric &	202	:	:	" Water	
Booth No				421 493 16		333 400	171 436	118 437 316	
Location of Will				Golden	Three Valley -Taft.	Arrowhead	Savona	Wigwann. Savona. Arrowhead.	
Mill Owner			Bowman Lumber Co., Ltd	2 Columbia River Lumber Co., Ltd Golden	13 Dominion Sawmills & Lumber, Limited, Three Valley - Taft. 14 A. K. Rogers Lumber Co., Ltd Enderby	5 Arrow Lakes Lumber Co., Ltd	6 Monarch Lumber Co	7 Lee Lamber Co., Ltd 8 Independent Lambor Co	
Z			-	C)	ಬಿಷ	5	9	r-∞ co	

the Sawmills operating within the Kamloops Agency under Government License, &c.—Concluded.		PAPER .	No. 2	Nothing cut. Cutting for March 1912 quarter has been approximated and included in these totals. Some cutting during the quarter ended December 31, 1911, but cannot obtain returns so far. No lumber cut. No lumber cut. No logs were cut on berth 316 during the year ended March 31, 1912.							
r Government	Date of	Last Return.		March 31, 1912. " 31, 1912. " 31, 1912. Dec. 31, 1911.	March 31, 1912.	March 31, 1912.					
ency unde	Number	made.		ਚਾ ਚਾ ਨ	न्तुः	andre andre					
amloops Ag	Average Price	of Lumber per M. feet.	& cts.	12 00 16 41 13 55 11 55	18 25 15 32	15 32					
thin the Ka	SHINGLES,	Manu- factured.				2,807	2,807				
erating wi	Telegraph Poles.	Manu- factured.		88			894				
Sawmills of	Совржоор.	Cords Cut.		3331			331				
	RAILWAY TIES.	Manu- factured.		20,906			20,906				
SCHEDULE B.—Showing	Average per	Log.	Ft. B.M.	157 73·6 161·1 137·9	72.1	6 6.7	139.3				
SCHEDU	Log Count.	Logs Cut.		71,351 32,087 111,297 96,601	2,278	6,657	337,424				
	25—i—9	4 1 2		c1 c2 	.n છ t-	တ ဇာ					

Schedule D.—General Office Return of the Crown Timber Agency, Kamloops, for Fiscal Year ending March 31, 1912.

Number, &c.	As compared with pre- vious year. Increase.	As compared with previous year. Decrease.
Combined with land office 74 96 5 450		
None. 46,912,258 \$14.63 per M.		21,037,946
	Combined with land office 74 96 5 450 8 None. 46,912,258	Combined with land office work. 74

No. 26g.

REPORT OF THE INSPECTOR OF CROWN TIMBER AGENCIES.

Office of Inspector of Dominion Crown Timber Offices, Winnipeg, Manitoba, July 1, 1912.

J. W. Greenway, Esq., Commissioner of Dominion Lands, Ottawa, Ont.

Sir,—I beg to submit my annual report upon the business of my office as Inspector of Crown Timber Offices for the year ended March 31, 1912.

During the year I made a round of all the offices under my inspectorship, making a careful inspection of the same. My findings were reported to you at the time, which were generally favourable to the office inspected. The officials connected with the timber work I found were active in the discharge of their duties. This was particularly the case in respect to the timber inspectors. Collection of revenue has been sharply looked after, with the result that the amount of unpaid accounts at the end of the year is comparatively small, and, for the most part, amply secured. The activity of the inspectors in the field also had the effect of largely increasing the demand for timber permits and in bringing about a better observance of the law. The holders of licensed timber berths, who are conducting operations, are showing increased care in their cuttings, which are being carried on with the minimum amount of waste. A standing menace facing the lumber operator is that of fire. While every precaution is being taken by those holding valuable timber berths to guard against fire getting in their timber, still fires are of yearly occurrence. The present year has been a disastrous one for some of the berth-holders in northern Saskatchewan, who, it is reported, lost heavily by fires. Operations on the burnt area were carried on last winter as extensively as was practicable, by which upwards of 100,000,000 feet of fire-killed timber was cut. The Forestry Branch of the department is doing much to bring about in the west a better observance of the laws pertaining to the setting out of fires, but,

so long as the woods are open to squatters and summer travelling by traders, hunters, prospectors and others, to come and go at will, without the knowledge of the department, fires will occur, with little chance of the offender being brought to account. To my mind, greater care should be taken to keep settlers from entering upon timber lands adjacent to valuable belts of timber. It is alleged that the destructive fires of last year in northern Saskatchewan, referred to, originated with a settler burning the slash, in the clearing of his homestead. A settler entering upon land that requires to be cleared of timber before it can be cultivated is starting out badly handicapped in the race for success. It costs from twenty-five to fifty dollars per acre in the prairie provinces to clear land of timber for cultivation, and in British Columbia from one hundred to five hundred dollars per acre, and, as these lands are invariably only taken up by settlers with little or no capital to start with, very slow progress towards earning support from the land is made. While there are open prairie lands to be had as homesteads, the local agents should exercise every care to see that timbered lands of the class reserved from entry by the Act, are not parted with as homesteads.

REVENUE.

The revenue derived from all sources in connection with timber and grazing for the year, amounted to \$419,440.93, which sum will be increased by the payments made direct to the department at Ottawa. This is a better showing than last year in which were included large sums paid in on the purchase of timber berths, of which few were sold during the year under review, and those being of comparatively small value. A large increase in revenue is shown under the head of dues on timber cut under permits. This is accounted for chiefly in the large amount of railway construction timber cut under permits issued to contractors of the Grand Trunk Pacific and Canadian Northern railways for use in lines being built in western Alberta.

LUMBER.

The demand for lumber and other products of timber throughout the west, during the year, has been good. The prices were somewhat higher than those of last year, from \$2 to \$4 per M. feet on some grades, while on others the increase was greater.

From statistics, carefully gathered, I am able to give you the amount of lumber marketed in Manitoba, Saskatchewan and Alberta, during the year, and for comparison the figures for the preceding year are given:—

	1911-12. Feet.	1910-11. Feet.
From Western Cottanio (pine)	692,000,000 150,000,000	620,000,000 140,000,300
From United States (free) From United States (dutiable) Manufactured at mills in Manitoba.	47,000,000	122,000,000 Not known.
Alberta, and Saskatchewan (spruce).		135,524,202
İ	1,281,110,144	1,017,524,202

In addition to the lumber imported from the United States, there were imported 67,000,000 lath and 35,000,000 shingles, which products, under the tariff, are free of duty. There also came in from the United States and the province of Ontario 10,000,000 feet B.M. of maple flooring and 6,000,000 feet of other hardwoods.

The licensees of timber berths within the railway belt in British Columbia continue to operate mainly in provincial timber. The cut on Dominion lands shows

a falling off of nearly 15,000,000 feet as compared with the preceding year's cutting. The shipments, however, of lumber from that province into Manitoba, Saskatchewan and Alberta exceed in amount about 7,000,000 feet over last year.

I append the usual statements which are to be read in connection with the

report, namely:-

'A.'-Summary of work performed and revenue.

- 'B.'-Showing extent of timber products manufactured, sold and in stock.
- 'C.'—Timber material covered by permits issued.
- 'D.'—Showing number of hay permits issued and amount of hay covered thereby.

As will be seen from the last named statement, permits covering 153,702 tons of hay were issued to settlers, upon which a revenue of \$18,916.08 was collected.

The hay permit regulations are not working satisfactorily and needed amendments should be made therein before entering upon another season. I took the matter up with the several local agents in the west, and, after getting their views as to the requirements, framed, what I considered, the regulations which should be adopted. The draft of form was left at the department by me early in the year for consideration.

In addition to the work devolving upon me in connection with the timber interests of the department, I have, as you are aware, been employed on special service by the Minister in the inspection of Dominion Lands offices and in holding investigations on land matters.

Respectfully submitted.

E. F. STEPHENSON, Inspector of Crown Timber Agencies.

STATEMENT 'A.'-Summary of work performed at the respective Crown Timber offices during the year ended March 31, 1912, showing transactions under various heads and amount of revenue collected.

		TIMBER AND GRAZING BRANCH.						School Lands Branch.						
Agency.	Bonus.	Ground Rent.	Royalty on Sales.	Timber Permits.	Timber Seizures.	Hay Permits.	Grazing Rentals.	Sundries.	Timber Permits.	Hay Permits.	Grazing Rentals.	Sundries.	Revenue	
Battleford. Brandon Calgary Dauphin. Edmonton Estevan "Grande Prairie Humboldt. Kamloops Lethbridge Medicine Hat Moosejaw New Westminster Peace River, Prince Albert Red Deer Regina Saskatoon Swift Current. Yorkton Winnipeg.	1 7 · · · · · · · · · · · · · · · · · ·	25 1 69 260 117 582	41 1067 49 70 22 122 1371	683 186 515 1,840 1,945 121 122 195 180 125 665 1,769 50 41 1,645 227 9 34 769 385 1,466	7 4 100 339 55 30 30 49 2 7 46 256	2411 611 131 115 589 1066 35, 150 14 12 241 355 49 301 182 46 2089 106 2099 3,500	11 2115 4	5688 3 155 1 166 1 188 1 1 9 25 6866	142	112 107 216 118 385 196 7 233 50 60 304 143 275 323 321 228 136 335 355 3,550	40 5 6 66 13 32 31 23 13 50 14 41 13 6	 2 15 9 11 1 1	\$ 2,163 1,137 24,072 13,179 81,174 1,165 311 1,521 46,897 5,326 16,981 4,951 58,452 407 54,214 2,043 1,608 4,241 1,106 96,785	cts. 46 61 75 88 54 45 35 83 36 62 16 66 15 30 1 42 31 25 68 93
Previous year	28	563	363	12,115	272	2,555	844	53	83	2,907	567	27	417,525	36

^{*}Office opened July, 1911.

E. F. STEPHENSON, Inspector of Crown Timber Agencies.

STATEMENT 'B.'—Showing amount of manufacture and sale of Timber Products by holders of Timber Berths on Dominion Lands cut under yearly license during the Departmental Year ending March 31, 1912, according to returns made.

	1	On Hand.	541,449 789,345 319,178 241,875 36,702 rtns B.C. made by	scale. 3,052,278 	,212,905	1,968,881
	Saw Logs.	Man'f'd Mill.		8931.431,636 3,052,278 837.424 n't k'own	4,949,566 3,366,740 5,242,905	3,716,243 2,646,377 3,968,881
	v.	Pcs.	541,610 328,141 36,702	2,625,862 337,424 1,079,827	4,949,566	
		On Hand.		50,000	50,000	8:6,650
)	SHINGLES.	Sold.	49,716,000	35,000	49,751,000	37,862,350
1		Manufac- tured.	49,716,000 49,716,000	85,000	390,215 49,801,000 49,751,000	200,989 37,948,000 37,862,350
)	Railway Tues.	Sold.	360,242	8,839	390,215	200,989
		On: Hand.	959,050	1,046,800	6,986,500	2,720,200
	Гати.	Sold.	861,250	6,628,600	13,931,903	23,766,363
		Manufac- tured.	1,854,633	6,284,650	18,343,253	18,957,193
		On Hand.	13,397,440	47,516,621 36,799,450 6,284,650 6,628,600 46,912,258 48,137,980 26,432,551 8,288,270 4,737,420	82,148,435	40,584,365
	Гомвек.	Sold.	15,952,291 14,300,211 27,413,121	47,516,621 46,912,258 48,137,980	200,232,482 82,148,435 18,343,253 13,931,903	210,120,568 40,584,365 18,957,193 23,766,363
•		Manufac- tured.	21, 129, 177 16, 472, 600 27, 413, 121	77, 469, 595 46, 912, 258 51, 466, 930	240,863,681	203,239,661
		Agency.	Calgary Edmonton: New Westminster	Prince Albert Kamboops		Previous year

CUT FOR THE TRADE.

1	$^{72,697}_{111,552}$	41,654	39,842	265,745	257,166
-	97,483	67,427	192,885	726,273	513,065
	101,290 353,808	66,751	214,629	739,478	588,612
	312,750			312,750	
	245,750			245,750	503,250
	558,500			558,500	630,000
1	37,174		1,367	138,581	18,520
	561,489			561,489	:
	4,624,014 4,063,525			4,063,525	479,741
				4,624,014	478,741
	3,860,653 3,462,003 11,347,549 12,852,656	2,602,325 1,285,497 5,226,345	2,197,341	30,203,041 19,797,497 4,624,014 4,063,525	35,818,714 7,468,981
	3,860,653			30,203,041	35,818,714
-	5,317,639 20,138,704	3,042,269	8,213,344	53,984,974	27,347,629
	Calgary	Prince Albert.	Winnipeg		Previous year

E. F. STEPHENSON, Inspector Crown Timber Agencies.

SESSIONAL PAPER No. 25

o Homestead Settlers, during the)	
دب		
, principally		
Agencies,	12.	
ued at the respective	ending March 31, 1912.	
Permits Iss	Year	
چ		
Covered 1		
NT 'C.'—Timber Material		
STATEME		

Lath.		1,047,900
Telegraph Poles.	2, 995 19, 144 2, 304 240	54,052
Railway Tres.	1,936,322 1,936,322 6,000 1,000 14,300 1,300 53,866 7,975	2,019,916
Shingles.	25,000 5,065,000 19,475,000 500,000	30,852,000
Mine Props.	J., Ft.	264,539
Cordwood Cords.	2, 198 2, 2, 346 2, 346 3, 346 3, 328 3, 328 3, 328 3, 328 3, 163 1, 3, 328 1, 3, 328 1, 3, 328 1, 3, 3, 3, 3, 4, 5, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6,	196,530
Roof Poles. Fence Posts, Fence Rails, Cordwood	137,367 165,312 18,320 2,152,348 3,450 42,720 76,010 11,588 11,588 895,705 562,739 889,705 16,3416 10,940 6,300 6,300 6,300 6,300 6,300	6,416,326 5,102,625
Fenee Posts,	136,019 1,000 127,160 27,620 55,5150 10,425 10,425 11,000 175,245 13,860 11,000	2,438,659
Roof Poles.	113,367 550 554,105 10,450 10,4848 8,275 8,275 12,830 140,708 323,742 11,200 323,742 11,568 11,568	1,638,660
Lumber and Logs.	Ft. B.M. 3,527.238 76,500 2,256,131 2,979,474 13,524,638 171,924 1,088,713 285,948 4,311,285 611,775 7,322,172 1,178,000 1,532,500 1,532,500 2,589,620 1,532,500 1,5	44,617,680
Agency,	Battleford Calgary Dauphin Calmonton Edmonton Fidmonton Fidmontol	Comparative Statement year ending March 31, 1911

E. F. STEPHENSON, Inspector Crown Timber Agencies.

STATEMENT 'D.'—Showing the number of Hay Permits and the amount of hay covered thereby issued to settlers from the different Dominion Land Offices in Manitoba, Saskatchewan, Alberta and British Columbia for the year ending March 31, 1912.

Agency.	Dominion	LANDS.	School	LANDS.	Dues and Fees Collected.
	No. Pts. issued.	Tons Hay.	No. Pts. issued.	Tons Hay.	\$ cts.
Battleford Brandon Calgary Dauphin Edmonton Estevan Grande Prairie Humboldt Kamloops Lethbridge Medicine Hat Moosejaw New Westminster Prince Albert Peace River Red Deer Regina Saskatoon Swift Current Yorkton Winnipeg	242 31 128 113 589 106 35 150 12 12 237 355 	5,430 590 2,495 3,271 11,204 2,011 1,160 2,140 207 245 14,745 8,006 4,194 2,045 4,545 906 4,395 5,542 1,642 3,901	· 277 323 322 228	5,755 4,337 2,437 6,529	1,368 45 368 80 887 80 527 65 2,478 36 884 35 176 00 713 90 41 92 93 80 776 55 2,083 10 1,246 95 256 40 1,361 55 1,065 65 1,477 25 1,129 70 587 50 1,390 40
Comparative statement for year ended March 31st, 1911	2,592	$78,925\frac{1}{2}$	2,787	65,516½	13,919 10

E. F. STEPHENSON,
Inspector Crown Timber Agencies.

No. 26h.

REPORT OF THE INSPECTOR OF RANCHES.

DEPARTMENT OF THE INTERIOR. Office of the Inspector of Ranches. CALGARY, ALBERTA, April 22, 1912.

J. W.- GREENWAY, Esq., Commissioner of Dominion Lands, Ottawa Ont.

SIR.—I have the honour to submit herewith my report of the transactions of the office of the Inspector of Ranches for the Fiscal Year ending March 31, 1912.

During the year 5,660 quarter-sections were inspected, which necessitated travelling 6,893 miles by wagon and 6,839 miles by rail.

From April 1 to 20, I was engaged in the distribution of government seed grain

for the Immigration Department.

The past winter of 1911-12 has been an unusually severe one in certain portions of the grazing area in Alberta and Saskatchewan. There was a heavy fall of snow about November 1, and from that time to about March 31 repeated snowfalls and continual cold weather made it a difficult problem for the ranchers to pull through without severe loss. The loss along the Red Deer River was not so great, as there was abundance of feed procurable and most of the stock were fed during the cold weather. In the Cypress Hills country and along the Frenchman river in Southern Saskatchewan the snow was very deep and crusted and the loss in these districts has been heavy. In fact in southern Saskatchewan and southern Alberta the weather has been the severest and the winter has been the worst experienced for many years according to old-time ranchers.

It was extremely difficult and in some cases impossible to make inspections during the winter months, but from information secured and from notes taken on former inspections a good number of the applications have been dealt with. Spring has now opened up and the prospects are good for the coming year.

Your obedient servant,

CHAS. GRAYSON, Inspector of Ranches. 3 GEORGE V., A. 1913

No. 27.

REPORT OF THE SUPERINTENDING ACCOUNTANT.

DEPARTMENT OF THE INTERIOR,
ACCOUNTS BRANCH, OTTAWA, May 31, 1912.

W. W. CORY. Esq., C. M. G., Deputy Minister of the Interior, Ottawa, Ont.

Sir,—I have the honour to submit herewith statements of revenue collected from various sources during the fiscal year ended March 31, 1912, as follows:—

A.—Dominion lands, including Yukon	\$ 3.973,259	74
B.—Ordnance lands	11,566	46
C.—School lands	1.594,533	96
D.—Registration fees, Yukon	1,066	05
E.—Fines and forfeitures, N.W.T	341	00
F.—Casual revenue	32.824	65
G.—Seed grain repayments	119,634	13
H.—Fines under Immigration Act	10,169	48
I.—Chinese immigration revenue	971,339	00
	\$ 6.714,734	47

A statement of revenue on account of Dominion Lands (marked J.) shows the receipts monthly, classified under sub-heads.

Statement (marked K.) shows a comparison between the receipts on account of

revenue of the previous twelve months.

Statement (marked L.) shows the Chinese immigration revenue collected by the Departments of Trade and Commerce and the Interior for the fiscal year 1911-12, by ports.

The gross receipts from all sources for the fiscal year 1911-12 amount to \$6,714.

734.47, an increase of \$1,621,594.02 over the receipts of the previous year.

Your obedient servant,

CHAS. H. BEDDOE,
Superintending Accountant.

SESSIONAL PAPER No. 25

A.—Dominion Lands Revenue (Cash and Scrip) for the Fiscal Year ending March 31, 1912.

Agencies.	Cash.	Scrip.	Total.
YUKON TERRITORY.	\$ ets.	\$ ets.	\$ ets.
Sales of lands. Rentals of land. Map sales, office fees, &c Timber dues. Hay permits. Coal lands. Mining fees. Export tax on gold Free certificates for export of gold. Hydraulic leases. Dredging leases. Homestead fees Rent of water power. Interim receipt account. Survey fees.	$\begin{array}{c} 3,752\ 01\\ 11,485\ 28\\ 95\ 00\\ 18,271\ 69\\ 169\ 00\\ 575\ 25\\ 69,085\ 01\\ 100,606\ 29\\ 118\ 50\\ 15,602\ 55\\ 2,860\ 96\\ 30\ 00\\ 10,689\ 62\\ 211\ 50\\ 1,045\ 00\\ \end{array}$		$\begin{array}{c} 3,752 \ 01 \\ 11,425 \ 28 \\ 95 \ 00 \\ 18,271 \ 69 \\ 169 \ 00 \\ 575 \ 25 \\ 69,935 \ 01 \\ 100,606 \ 29 \\ 118 \ 50 \\ 15,602 \ 55 \\ 2,860 \ 96 \\ 30 \ 00 \\ 10,689 \ 52 \\ 211 \ 50 \\ 1,045 \ 00 \\ \end{array}$
DOMINION LANDS AGENCIES.	234,497 66		234,497 66
Battleford Brandon Calgary Dauphin Education Education Estevan Grande Prairie Grouard Humboldt Kamloops Lethbridge Medicine Hat Moosejaw New Westninster Prince Albert Red Deer Regina Saskatoon Swift Current Winnipeg, Yorkton	** 86,077 95 6,432 76 322,107 43 17,229 45 128,941 89 157,025 59 7,055 78 11,372 87 27,907 95 16,273 01 191,242 65 521,205 93 323,534 51 20,510 30 38,476 85 77,565 92 351 44 292,854 12 266,608 78 62,110 88 28,838 11	181 82 378 66 480 00 90 88 640 00 514 29 971 34	86,259 77 6,432 76 322,107 43 17,229 45 129,320 55 157,025 59 7,055 78 11,852 87 27,998 83 16,273 01 191,242 65 521,845 93 323,534 51 20,510 30 38,476 85 77,565 08 29,351 44 292,854 12 267,123 07 63,082 17 23,838 11
Battleford. Brandon. Calgary. Dauphin. Edmonton. Estevan. Grande Prairie (nine months). Grouard. Humboldt. Kamloops. Lethbridge. Medicine Hat. Moosejaw. New Westminster. Prince Albert. Red Deer. Regina. Revelstoke (three months). Saskatoon. Swift Current. Winnipeg. Yorkton.	2,632,723 28 378 90 496 89 19,643 83 10,586 64 81,547 39 129 95 5 50 132 65 79 75 40,122 47 216 00 214 90 485 55 59,404 13 52,120 56 5311 65 5 75 21,748 75 226 25 94,030 32 460 30	3,256 99	2,635,980 27 378 90 496 89 19,643 83 10,586 64 81,547 39 129 95 5 50 152 65 79 75 40,122 47 216 00 214 90 485 55 59,404 13 52,120 56 311 65 5 75 21,748 79 226 25 94,030 32 460 30
	382,396 92		382,396 92

A.—Dominion Lands Revenue (Cash and Scrip) for the Fiscal Year ending March 31, 1912—Concluded.

Rocky Mountains Park 5 Jasper Park Yoho Park Waterton Lakes Park Buffalo Park Elk Island Park Elk Island Park Survey fees 2 Irrigation fees Map sales, office fees, &c Fees Board of Examiners, D.L.S. Mining fees Grazing lands 6 Hay permits 43 Coal lands 43 Dredging leases Stone quarries Rent of water-power Suspense account Sales of land 2 Homestead fees 2 Rentals 2 Petroleum 4 Sand, stone and gravel 1 Forestry branch, sale of trees, &c 1	Cash.	Scrip.	Total.
Jasper Park Yoho Park Waterton Lakes Park Buffalo Park Elk Island Park Elk Island Park Elx rrigation fees 2 Map sales, office fees, &c Fees Board of Examiners, D.L.S Mining fees 6 Grazing lands 6 Hay permits 2 Coal lands 9 Dredging leases 43 Stone quarries 8 Rent of water-power 8 Suspense account 5 Sales of land 2 Homestead fees 8 Rentals 9 Petroleum 4 Sand, stone and gravel 1 Forestry branch, sale of trees, &c.	\$ ets.	\$ cts.	S ets.
72	52,027 63 3,492 85 491 08 284 68 158 32 43 18 29,578 15 793 72 8,053 71 1,400 00 6,083 41 69,519 41 9,754 22 439,926 67 1,160 09 9,938 86 583 30 1,660 29 27,308 34 10,226 65 11,421 55 694 86	1,520 00	52,027 63 3,492 85 491 08 284 68 158 32 43 18 29,578 15 793 72 8,053 71 1,400 00 6,083 41 71,039 41 9,754 22 439,926 67 1,160 00 9,938 86 583 30 1,660 29 27,308 34 20 00 21 00 49,226 65 11,421 55 694 86
Refunds	723,641 88 3,973,259 74 197,402 77 3,775,856 97	1,5200 00 4,776 99 228 58 4,548 41	725,161 88 3,978,036 73 197,631 35 3,780,405 38

CHAS. II. BEDDOE,

Superintending Accountant.

DEPARTMENT OF THE INTERIOR, ACCOUNTS BRANCH, Ottawa, May 31, 1912.

B.—Statement of Ordnance Lands Revenue for the Fiscal year ending March 31, 1912.

1911.

April	.\$ 1.688 95
May	
June	. 1.646 21
July	. 630 92
August	. 692 64
September	. 3,489 95
October	. 779 71
November	. 900 22
December	. 199 91
1912.	
January	. 365 15
February	. 448 04
March	. 10 25
	\$11.566.46

\$11,566 46

CHAS. H. BEDDOE,

Superintending Accountant.

DEPARTMENT OF THE INTERIOR, ACCOUNTS BRANCH, Ottawa, May 31, 1912.

C.—Statement of Receipts on account of School Lands for the Fiscal Year ending March 31, 1912.

Month.	Manitoba School Lands.	Saskatchewan School Lands.		Total.
1911.	S cts.	\$ cts.	\$ cts.	\$ cts.
April May June July August September October November December	11,469 95	16,060 70	3,897 10	31,427 75
	21,564 22	40,115 57	248,305 70	309,985 49
	44,448 68	89,082 96	19,860 29	153,391 93
	26,275 34	131,625 88	78,024 85	235,926 07
	11,098 69	11,754 44	49,489 32	72,342 45
	8,584 00	10,044 21	6,778 08	25,406 29
	19,645 84	31,818 21	49,528 51	100,992 56
	72,573 34	62,442 22	117,741 16	252,756 72
	58,182 82	53,499 09	43,166 65	154,848 56
January February March	28,365 35	40,398 57	19,387 27	88,151 19
	32,040 16	21.885 05	18,414 37	72,339 58
	44,294 10	32,773 52	19,897 75	96,965 37
	378,542 49	541,500 42	674,491 05	1,594,533 96

CHAS. H. BEDDOE,

Superintending Accountant.

DEPARTMENT OF THE INTERIOR, ACCOUNTS BRANCH, Ottawa, May 31, 1912.

D.—Statement of Registration Fees in the Yukon Territory for the Fiscal Year ended March 31, 1912.

Month.	District.	Registrar.	Amount.
1911. April	Vukon	N Talibarta	\$ ets.
May June July August September October November December	"	11	61 85 86 30 130 75 218 37 156 35 103 05 80 15 39 58
January February March	#	0	48 75 21 80 86 25 1,066 05

CHAS. H. BEDDOE,

DEPARTMENT OF THE INTERIOR,
ACCOUNTS BRANCH,
OTTAWA, May 31, 1912.

Superintending Accountant.

E.—Statement of Fines and Forfeitures in the Northwest Territories for the Fiscal Year ended March 31, 1912.

Month.	From whom Received.	Amo	unt.
1911.		8	ets.
July. August	John Henry Sam Furneaux E. Steersman W. H. Bunting Jos. Whitehead Henry Ross Lesperance Young Louis Mouche Fred. Kozack H. S. Johnson Thos. D. Grace Andrew Robinson Andrew Moatt		25 00 50 00 25 00 25 00 25 00 25 00 10 00 25 00 5 00 25 00 26 00 26 00
1912.			
March	W. J. Kitchekesik. Matthias Frank. Chas. Larone Rex. V. Graham. Peter Ross		$\begin{array}{ccc} 1 & 00 \\ 2 & 00 \\ 25 & 00 \\ 10 & 00 \\ 10 & 00 \end{array}$
		3	341 00

CHAS. H. BEDDOE,

Department of the Interior, Superintending Accountant.

Accounts Branch,

Ottawa, May 31, 1912.

F.—STATEMENT of Casual Revenue for the Fiscal Year ended March 31, 1912.

Name.	Particulars.	Amount.
		0 .4.
G.A. Johnston	Refund account Immigration expenses 1906-07 of cheques not used account Banff Waterworks	\$ cts. 9 40 11,162 99
John Galt	and Sewerage. Amount paid for boat returned by Geo. White-Fraser	1,311 47
Great Northern Railway	—Boundary Surveys. Refund on freight charges on boundary monuments— Boundary Surveys	15 00
J. A. Dunn	Boundary Surveys Refund overcharge contingent account for January, 1911	407 60
Dionne & Low	Cheque for account not used refunded—Dominion Lands Forestry.	1 00
O. V. Goulette	railway fare Andrew Mills deported	2 00 1995
R. Laurier. W. S. Larose.	" T. J. Morin balance on hand March 31, 1911—Immigration	5 60 65 43
Public Works Dept.	" amount paid for gravel, Yorkton Immigration Building—Inmigration Expenses	25 00 16 50
0	Refund amount paid for lumber, Saskatoon Immigration Hall—Immigration Expenses.	8 55
J. T. Blackford. Can. Pac. Ry. Co.	Refund advance 1910-11—Forestry	43 00 14 88
Western Canada Cement and Coal Company	" cement bags returned to Company—Parks	7 20
L. J. Glceson.	amount overpaid for salary, March, 1911, through P. M. Sauder's irrigation account	1 94
Public Works Dept	Refund amounts paid rent of Immigration Halls and fuel—Immigration	54 75
Rev. Sister Page	—Immigration	1 50
S. N. Foster. J. W. Martin	Refund salary cheque, March, not used—Immigration balance amount advanced Homestead Inspect. Whiteside, to pay for buggy—Dominion Lands	46 45
R. E. Young	Contingencies	25 00 31 40
J. S. Crawford. J. R. Dickson G. M. Ullyot.	Proceeds sale of canoe, Le Pas—Forestry	4 25 6 00
Walter Meyers.	Salary cheque, February and March, not used	$\frac{30}{166} \frac{00}{66}$
W. S. Larose. W. F. Nichol Comptroller of Yukon.	Balance expenses—Immigration	6 20 300 00
	Amount unclaimed estates in the Yukon for which no next of kin is known	30 90
A. W. Ashton	Income Lands	54 60
H. Charlebois	Refund account expenses, 1906-07—Immigration One-half cost deportation expenses of J. Sandvig—Im-	10 00
John McInnes	n.igration	57 57
H. Charlebois Pauline & Co	Income. Refund account expenses, 1906-07—Immigration Proceeds sale of old camp outfit—Astronomical Sur-	60 95 5 00
P. A. Carson	Balance on hand by E. M. Dann account advances,	21 00
Comptroller, Yukon	1910-11—Water Power Investigations	29 11 470 00
	Refund amount paid for coal re heating Edmonton	144 87
	Immigration Building	101 96 62 19
H. Charlebois	1910-11 re expenses	9 73
E. W. Brewster	gration	5 00
25—i—10	migration	10 90

F.—STATEMENT of Casual Revenue for the Fiscal Year ended March 31, 1912—Con.

Name.	Particulars.	Amount.
		\$ cts.
W. Wright	Proceeds sale of old buildings, Cypress Hill Forest	-\$1 C 0.3 6
	reserves	304 83
Grand Trunk Ry	Refund railway fares re deportation of 2 women Mrs. Tassé—Immigration Ex-	13 30
R. H. Nelles	penses. Refund amount overpaid L. Puyjalon—Astronomical Surveys Vote 1910 11	11 25
	Surveys Vote, 1910 11. Refund duty charged A. G. Stewart, on goods shipped	140 00
Dept. Customs, U.S	Refund duty charged A. G. Stewart, on goods shipped him from Dawson	7 17
J. S. Crawford	Refund balance of contingencies Thos. Duncan, 1910-	
H. Hansen	11—Immigration	173 17 445 00
A. E. & Hy. Hansen	Refund compensation for improvements	230 00 2,065 00
H. Charlebois	account expenses, 1906-07—Immigration	5 00
H. H. Abbott	salary as caretaker Quarantine Reserves, Emerson, Man., for May, June, July and August,	
I C Dono	Refund proceeds sale of set of harness	149 00 10 00
I. S. Doze V. Kast	cheques January 13, 1911, not used—Forestry	2 00
J. Drew	cheque not used, compensation for improve-	2 00
	ments	3,000 00
P. A. Carson.	advances, A. T. Miller—Water Power Investigations	128 90
H. Charlebois	Refund account advances, 1906-07—Immigration amount paid for coal, Calgary Immigration	5 00
* 1	Hall	12 70
"	Refund amount paid for coal, Edmonton Immigration Hall—Immigration	60 24
H. Charlebois	Hall—Immigration Refund account advances, 1906-07—Immigration	5 00
Commissioner of Immigration, Winnipeg	Sale of old boards	7 55
Miss M. Schofield	Refund salary cheque, March, 1911—Civil Government Salaries.	63 37
Mrs. M. Rutherford	Refund salary cheque, October, 1910—Civil Govern-	
	ment Salaries	83 12
19	ment Salaries	83 12
	ment Salaries	83 12
	Refund salary cheque, January, 1911—Civil Government Salaries	83 12
Can. Pac. Ry. Co. E. H. White	Refund cheque not used—Costs of Litigation	1,684 96 25 90
A. Link	account expenses seed grain, 1911	2 15
W. F. Nichols W. S. Larose	U U U U	17 40 7 75
Edward Oliver	balance contingencies account, March 31, 1911	11 90
G. Thomson	—Dominion Lands Income Contingencies	
A. L. Robertson	side service salaries	32 50 20 00
L. J. O. Chevrier	ocean passage Madame Daix-Relief Distressed	
E. H. Crockett	Canadians Refund amount charged for meals, 1910-1911	14 60 13 00
H. Charlebois	account advances, 1906-07—Immigration	5 00 20 00
Wm. Ogilvie	amount overpaid in 1910-11—Water Power In-	
J. Bruce Walker	Refund sale of old straw and sheaves	101 95 77 00
Crown Timber Agent, Winnipag	Proceeds sale horse and harness of Inspector J. H.	100 00
R. G. Evans.	Thomson Proceeds sale of travelling outfit of Inspector Yake	125 00
H. Charlebois	Account advances, 1906-07—Immigration	5 00 8 16
A. D. McRae	Salary cheques not cashed—Pay list account, 1908-09.	174 16
J. E. Robillard	Refund account expenses, 1910-11—Immigration	40 00

F.—Statement of Casual Revenue for the Fiscal Year ended March 31, 1912—Con.

Name.	Particulars.	Amount.
		\$ cts.
J. B. Green	Refund cost of harness—Dominion Lands Income	10 00-
Geo. Dickin	Porteous—Dominion Lands Income	99 75
Thos. Fawcett	Refund proceeds sale of stove and canoe	25 00 5 00
J. E. Robillard	1910-11	21 31
Agt. Dom. Lds., Dauphin	sale of W. A. Davis' forestry outfit	41 25 85 53
R. N. W. M. Police	Transportation and Maintenance of Lunatics, Yukon	
W. & L. E. Gurley	Refund re difference in value of Transits and duty on	161 50
	Refund sale of old furniture, Glasgow Emigration	56 45
Finance Dept	office	13 02
G. H. Edgecombe	Refund account inspection of Orphan children	20 00 6,839 27
Bank of Montreal (London) David Cumning	Sale of old furniture, Glasgow Emigration Office	24 27
W. H. Stevens	Refund account sale of horse	50 00 50 00
R. G. Evans. F. Kennedy.	H H	40 00
Refund— Chas. MacDonald, Public Adminis-	-	32,186 24
trator, Yukon Territory		3 55
Casual Revenue, Northwest Territories.		32,182 69
<u> </u>	Time Descrit	9.00
F. McRae W. Mason	Liquor Permit	2 00 2 00
Dr. A. Larose		2 00
A. Johnston	"	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
F. Fischer.	11	2 00
F. Thenult	И	2 00 3 00
Gerald Card	11	2 00
T. C. Forbes	"	2 00
Hudson's Bay Co	11	33 80 40 50
G. R. Ray	11	4 00
John Still	11	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
H. H. Ross. A. J. Bell	11	2 00
Mrs. A. J. Bell	11	2 00
Herbert Branigan	11	2 50 2 00
Fred. Fadner	11	2 00
D. Ogilvie	11	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Bert Hubble	H	3 00
C. H. Anderson	11	2 00
H. S. Johnson	11	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
E. J. Pearce. W. Ogilvie.	11	5 00
L. Johnson	11	2 00
J. A. Crippen E. W. Roberts	11	80 2 00
Sam Adams	11	2 00
W. B. Moore	H	2 00
D. A. McIvor Percy H. Taylor	11	3 00 2 00
Rev. C. G. Fox	11	1 00
11 11 11 11 11 11 11 11 11 11 11 11 11	11	2 00
R. E. McKenzie	11	2 00 2 00
Henry South	11	80
Rev. Fr. Bonnald]	2 00
25—i—10½		- 4

3 GEORGE V., A. 1913

F.—Statement of Casual Revenue for the Fiscal Year ended March 31, 1912—Con.

Namé.		Particulars.	Amoun
			\$
M. South	Liquor Pe	ermit	2
C. Senkler	п		2
apt. H. H. Ross			2
F. Drummond	11		2
. L. Bélanger	11		3
udson's Bay Co	"		16
red Beatty	11		$\tilde{2}$
C. Senkler	**		2
nas. Hall	11		2
obt. Kerr	11		3
. Halcrow	11		2
eo. Asmus	11		1
Marcellais.	11		$\frac{2}{2}$
. H. Hamilton	11		$\frac{2}{2}$
P. Ducharmes	,,		$\tilde{2}$
M. Camsell.			$\tilde{5}$
McKenzie	11		2
udson's Bay Co	11		66
hn Thomas	11		1
Lapensée			2
. Kerr	U		2
A. Carroll	11		2
W. Burrell	- 11		$\frac{2}{2}$
udson's Bay Co	- 11		$\frac{2}{2}$
G. Morton m. Carrière	11		$\tilde{2}$
erald Card.	11		3
eo. McPherson	11		2
Hurssell	11		4
enry Sharp	11		2
F. Drummond	11		2
ndson's Bay Co	11		28
T. Vincent	11		2
avid Bone	11		2
thur Halcrow	11		$\frac{2}{2}$
hn HalcrowHalcrow, J. P	11		$\frac{2}{2}$
iployes Northern Trading Co	11		29
J. Bell.	11		2
rs. Lily Bell	11		$\overline{2}$
S. Salmon	11		0
ex. Lontit	11		2
McLenaghan	11		2
Bulyea	++		1
Tourangeau	11		$\frac{2}{2}$
Clark	11		$\frac{2}{2}$
Clark. Nunn	11		$\frac{2}{2}$
Hooker.	11	• • • • • • • • • • • • • • • • • • • •	$\frac{2}{2}$
nployes Hudson's Bay Co	11		19
" " " " "			51

Registration Fees, Northwest Territories.

			\$	cts
egistrar, North	West Territ	ories	6	00
11	11		12	30
11	11		32	00
11	11		30	00
H	ti .		16	00
11	11		9	00
11	11		22	70
11	17		19	80
11	11		1	50
89	11		34	61
		Less Refunds	183 6	91 50
			177	41
		Total Casual Revenue	32,824	65

CHAS. H. BEDDOE,

Superintending Accountant.

DEPARTMENT OF THE INTERIOR,
ACCOUNTS BRANCH,
OTTAWA, May 31, 1912.

G.—Statement showing Repayments on Account of Seed Grain Advances and Relief Mortgages for the Fiscal Year ending March 31, 1912.

Total.	\$ cts.	119,634 13 3,012 43	116,621 70	
Relief Advances.	\$ cts.	8,096 18 228 97	7,867 21	
Relief Mortgages of 1876.	s cts.	3,588 29	3,585 29	
Territorial Account, 188-58-881	& cts.	1,452 82 52 18	1,400 64	
Seed Grain to Set- tlers Account, '90.	cts.	589 03 70	588 33	
Seed Grain Advances, 1894.	& cts.	1,356 41 77 35	1,279 06	
Seed Grain Advances, 1895.	es cts.	1,665 48 31 93	1,633 55	
Seed Grain Advances, 1896.	e cts.	296 01	296 01	
Seed Grain Advances, 1900.	\$ cts.	59 50	59 10	
Seed Grain. Advances, 1901.	& cts.	37 81	37 81	
Seed Grain Advances, 1905.	s cts.	225 59 24 27	201 32	
Seed Grain Advances, 1908.	\$ cts.	53,617 59 2,098 60	51,518 99	
Seed Grain Advances, 1909.	\$ cts.	13,531 67 158 78	13,372 89	
Seed Grain Advances, 1911.	& cts.	35,117 75 336 25	34,781 50	
.		Refunds		

DEPARTMENT OF THE INTERIOR,
ACCOUNTS BRANCH,
OTTAWA, May 31, 1912.

CHAS. H. BEDDOE,
Superintending Accountant.

H.—Statement of Fines under Immigration Act for the Fiscal Year ended March 31, 1912.

Month.	From whom received.	Amount.
1911.		\$ cts.
April	C. G. Greene. C. St. G. Yarwood.	50 00 9 00
	E. Wills	644 20
	H. G. Lawrence	24 84
	C. G. Greene. C. St. G. Yarwood.	145 00 88 20
н	Alex. Fraser	200 00
"	S. H. Shannon. H. Bose.	37 00 249 00
H	M. C. Goodsir	30 00
0	J. O'Callahan.	75 00
11	J. A. McCallum M. C. Goodsir	20 00 100 00
	C. St. G. Yarwood	14 00
	Henry Bose. M. C. Goodsir.	369 00 60 00
	C. G. Greene	25 00
		80 00
11	J. O'Callahan A. C. O'Neil	5 00 50 00
n	C. St. G. Yarwood	3 00
н	N. S. Dow.	20 00
H	C. St. G. Yarwood. A. E. Skinner	40 00 10 00
	E. Wells	321 40
July	C. G. Greene T. D. Cowper	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
	Alex. Fras-r.	445 00
	H. Bose	5 00
"	Robt. Fleck.	35 00 25 00
11	C. St. G. Yarwood	2 00
H	H. Bell.	50 00
!!	C. St. G. Yarwood. M. Stigachick	96 00 50 00
	F. S. Dilworth	40 00
August		50 00 100 00
	Police Magistrate, Windsor, Ont	10 00
11	C. St. G. Yarwood	40 00
11	C. St. G. Yarwood C. St. G. Yarwood	50 00 70 00
	C. G. Greene	50 00
11	Wm. Creery. C. St. G. Yarwood.	45 00 110 00
September	C. St. G. Yarwood	13 00
	Henry Bell	7 00
11	J. R. Thomson C. St. G. Yarwood	31 00 40 00
	C. St. G. Yarwood	40 00
October	Alex. Fraser. E. Wills	205 00 237 90
" ·····	E. Wills T. D. Cowper	266 00
	Noble Binns	270 00
W	C. St. G. Yarwood C. G. Greene	35 00 20 00
	C. St. G. Yarwood	20 00
	J. T. Mackay. W. J. Connor.	10 00 175 00
II	M. C. Goodsir.	189 00
November	J. C. Armstrong	20 00
11	J. H. Rodd W. B. Cochrane	$\frac{28}{400} \frac{80}{00}$
"	A. Morin	10 00
	Alex. Fraser	262 00

H.—STATEMENT of Fines under Immigration Act for the Fiscal Year ended March 31, 1912—Concluded.

December	Month.	From whom received.	Amount.
	1911.		\$ cts
	December	J. T. MacKay	180 00
W. B. Cochrane		C. St. G. Yarwood	10 00
C. St. G. Yarwood 180 0 C. St. G. Yarwood 180 0 Jos. Ryan 20 4 Michael Latis 15 0 Geo. Nickulus 15 0 1912.	11	H. Bose	75 00
C. St. G. Yarwood 180 0 Jos. Ryan 20 4 Michael Latis 15 0 Geo. Nickulus 15 0 1912.			
Jos. Ryan 20 4 15 0 15 0 15 0 1912.			
Michael Latis 15 0 Geo. Nickulus 15 0 1912.			20 4
1912. anuary J. T. Mackay 550 0 " T. D. Cowper 375 0 " J. H. Rodd 99 6 " E. Wills 287 1 " J. H. Rodd 96 6 " J. H. Bose 10 0 0 " Jos. Ryan 59 5 " Noble Binns 50 0 " H. Bose 775 0 " H. Bose 9201 0 " C. St. G. Yarwood 930 0 In J. T. Mackay 9287 0 In J. T. Mackay 9287 0 In J. T. Mackay 9287 0 In J. T. Mackay 9287 0 In J. T. Mackay 9287 0 In J. T. Mackay 9287 0 In J. T. Mackay 9287 0 In J. T. Mackay 9287 0 In J. T. Mackay 9287 0 In J. A. Potvin 92 0 In J. A. Potvin 92 0 In J. A. Potvin 92 0 In J. R. E. Plewman 92 0 In J. R. E. Plewman 92 0 In J. T. Mackay 945 0 In J. T			15 00
anuary J. T. Mackay 50 0 " T. D. Cowper 375 0 " J. H. Rodd 9 6 " E. Wills 287 1 " J. H. Rodd 9 6 " J. H. Rodd 9 6 " J. H. Rodd 9 6 " J. H. Rodd 9 6 " J. H. Bose 10 0 " Jos, Ryan 59 5 " Noble Binns 50 0 " H. Bose 75 0 " H. Bose 75 0 " H. Bose 9 10 0 " J. T. Mackay 9 287 0 " J. T. Mackay 9 287 0 " J. T. Mackay 9 287 0 " J. T. Mackay 9 287 0 " J. T. Mackay 9 287 0 " J. A. Potvin 9 2 0 " J. A. Potvin 9 2 0 " J. T. Mackay 9 287 0 " J. T. Mackay 9 3 0		Geo. Nickulus	15 00
T. D. Cowper 375 0 9 6 1	1912.	·	
T. D. Cowper 375 0 9 6 1	annarv	J T Mackay	50.00
J. H. Rodd 96 6 8 10 10 10 10 10 10 10		T. D. Cowper	375 00
E. Wills 287 4		J. H. Rodd	9 60
ebruary. H. Bose 10		E. Wills	287 1
Jos. Ryan 59 5		J. H. Rodd	
Noble Binns 50 0 H. Bose 75 0 H. Bose 201 0 C. St. G. Yarwood 30 0 J. T. Mackay 287 0 J. T. Mackay 287 0 J. A. Potvin 2 0 W. B. Cochrane 40 0 H. Bell 60 0 R. E. Plewman 22 0 C. St. G. Yarwood 70 0 J. T. Mackay 45 0 H. Bell 60 0 R. E. Plewman 22 0 C. St. G. Yarwood 70 0 C. St. G. Yarwood 70 0 J. T. Mackay 45 0 J. T. Mackay 45 0 J. T. Mackay 45 0 J. T. Mackay 45 0 J. T. Mackay 45 0 J. T. Mackay 45 0 J. T. Mackay 45 0 J. T. Mackay 45 0 J. T. Mackay 45 0 J. T. Mackay 45 0 J. T. Mackay 45 0 J. T. Mackay 45 0 J. T. Mackay 45 0 J. T. Mackay 45 0 J. T. Mackay 20 0 J. T. Mackay 20 0 J. T. Mackay 20 0 J. T. Mackay 20 0 J. T. D. Cowper 103 0 J. T. D. Cowper 103 0 J. T. D. Cowper 103 0 J. T. Mackay 25 0 J. T. Macka	· ·		
H. Bose			
H. Bose	11	H. Bose	75 0
farch S. J. Dempsay 150 0 "	11		201 0
J. T. Mackay 287 0 5 0 1		C. St. G. Yarwood	
J. T. Mackay 5 0 J. A. Potvin 2 0 C. St. G. Yarwood 55 0 W. B. Cochrane 40 0 H. Bell 60 0 C. St. G. Yarwood 70 0 C. St. G. Yarwood 70 0 J. T. Mackay 45 0 H. Bose 169 0 T. D. Cowper 103 0 C. St. G. Yarwood 113 0 C. St. G. Yarwood 240 0 C. St. G. Yarwood 240 0 C. St. G. Yarwood 25 0 0 C. St. G. Yarwood 20 0	larch	S. J. Dempsay.	
J. A. Potvin 20 10 10 10 10 10 10 10		J. T. Mackay	
C. St. G. Yarwood 52 0 W. B. Cochrane 40 0 W. B. Cochrane 40 0 W. B. Cochrane 40 0 W. B. Cochrane 40 0 W. C. St. G. Yarwood 70 0 W. C. St. G. Yarwood 70 0 W. J. T. Mackay 45 0 W. H. Bose 169 0 W. T. D. Cowper 103 0 W. C. St. G. Yarwood 113 0 W. C. St. G. Yarwood 240 0 W. C. Pittindrigh 25 0 W. C. St. G. Yarwood 20 0		J. A. Potvin	
W. B. Cochrane		C. St. G. Yarwood	
R. E. Plewman 22 0	11	W. B. Cochrane	40 0
C. St. G. Yarwood 70 0 C. St. G. Yarwood 70 0 J. T. Mackay 45 0 H. Bose 169 0 C. St. G. Yarwood 103 0 C. St. G. Yarwood 103 0 C. St. G. Yarwood 240 0 C. St. G. Yarwood 220 0 C. St. G. Yarwood 20 0 C. St. G. Yarwood 20 0			60 0
C. St. G. Yarwood 70 0 J. T. Mackay 45 0 H. Bose 169 0 T. D. Cowper 103 0 C. St. G. Yarwood 113 0 C. St. G. Yarwood 240 0 C. Pittindrigh 25 0 C. St. G. Yarwood 20 0			
J. T. Mackay		C. St. G. Yarwood	
H. Bose			
T. D. Cowper 103 0 C. St. G. Yarwood 113 0 C. St. G. Varwood 240 0 C. St. G. Varwood 250 0 C. St. G. Yarwood 20 0			
C. St. G. Yarwood 113 0 C. St. G. Yarwood 240 0 C. St. G. Yarwood 240 0 C. Pittindrigh 25 0 C. St. G. Yarwood 20 0			
C. Pittindrigh 25 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		C. St. G. Yarwood	113 0
C. St. G. Yarwood. 20 0			
			20 0 20 0
nerungs		Defineda	10,169 4
		Refunds	

CHAS. H. BEDDOE,

Superintending Accountant.

DEPARTMENT OF THE INTERIOR, ACCOUNTS BRANCH, OTTAWA, May 31, 1912. i

SESSIONAL PAPER No. 25

I .- STATEMENT of Chinese Immigration Revenue from October 2, 1911, to March 31, 1912.

Port.	Capitation Tax.	Registration Fees.	Penalties and Forfeitures.	Total Revenue.	
Victoria. Vancouver Nanaimo Montreal Quebec. Halifax North Sydney St. John Toronto Ottawa		\$ cts. 1,916 00 1,408 00 7 00 1 00 3 00 2 00 2 00 3,339 00	\$ cts. 1,550 00 500 00 950 00 500 00 3,500 00	\$ cts. 641,916 00 271,958 00 1,000 00 47,457 00 1,001 00 2,003 00 2 00 3,002 00 2,000 00 1,000 00 971,339 00	

Note.—The total revenue collected on account of Chinese Immigration for the Fiscal Year 1911-1912 was as follows :-

31st March, 1912 Total 1911-1912 \$3,049,722.00

For Chinese Immigration Revenue for the fiscal year 1911-12 by ports, see Statement L.

CHAS. H. BEDDOE,

Superintending Accountant.

DEPARTMENT OF THE INTERIOR, ACCOUNTS BRANCH, OTTAWA, May 31, 1912.

J.—Statement of Gross Receipts on Account of Dominion Lands Revenue for the Fiscal Year ending March 31, 1912.

	cts.	4 4 68 94 8 94 8 94 8 94 8 94 8 94 8 94	9 74
Total.	00	287, 634 294, 478 299, 478 208, 271 608, 271 807, 631 387, 182 380, 287 280, 171 282, 171 282, 171 282, 171 284, 536	3,973,259
Map Sales, Rental, Office Fees Miscella- neous.	\$ cts.	2,822 98 1,665 90 1,666 90 1,680 08 1,321 19 3,447 47 1,332 16 1,332 16 1,334 46 2,421 52	26,998 52
Ma N M	pp.	1000	15
Survey Fees.	\$ cts.	119 230 230 230 230 73 73 74 114 114 119 98 98 98 28,233 28,233	30,623
Canadian National Parks.	& cts.	6,985 13 3,783 3,783 3,783 3,783 3,783 3,783 3,87 3,87	56,497 74
Tax ld, fees, ands,	cts.	0.05 0.05	10 42
Export Tax on Gold, Mining fees, Hay, Coal Lands, &c.	49	46,700 67,286 47,286 47,176 66,1176 63,348 63,436 88,749 88,719 86,317 86,317 86,317 86,317 86,269 61,020	729,240
Rental from Grazing Lands.	cts.	4,513 23 6,277 39 6,402 29 5,842 80 6,004 29 7,848 66 3,557 87 3,557 87 7,149 66 5,345 66 7,015 92 6,860 97	69,519 41
Chr. La	46		
l'imber Dues.	& cts.	55,019 53 61,889 40 161,889 40 161,889 40 1837,328 46 182,110 97 18,882 50 18,882 50 18,882 50 18,882 50 18,882 50 18,882 50	400,668 61
	cts.	888 895181580 888 895181580	85
General Sales of Lands.	€	91,817 73,361 113,439 418,637 81,485 81,485 225,640 225,640 214,964 178,527 122,586 113,703 113,703	1,967,182
ove- tts.	cts	885 886 887 888 888 888 888 888 888 888 888	325 92
Improve ments.	49	16,935 15,083 16,063 18,643 18,019 11,019 15,316 15,389 14,927	184,825
Pre-emption and Purchased Honestead Fees.	\$ cts.	12,670 00 11,990 00 14,530 00 14,230 00 13,770 00 9,510 00 9,510 00 5,880 00 4,630 00 4,630 00 6,570 00 6,570 00	116,000 00
	cts.	46,050 00 46,710 50 48,770 00 46,710 50 42,560 00 32,886 60 26,560 00 21,000 00 21,000 00 21,450 00 26,450 00	391,703 12
Homestead Fees,	€	46,050 43,070 42,560 40,030 32,286 36,286 36,286 26,560 21,000 21,000 21,000 21,000	391,
Month,	1911,	April May. June. June. July June. July September October. November December. 1912 January Rebruary March.	

DEPARTMENT OF THE INTERIOR,
ACCOUNTS BRANCH,
OTTAWA, May 31, 1912.

CHAS. H. BEDDOE, Superintending Accountant.

DOMINION LANDS REVENUE.

K.—Statement of Gross Receipts (Cash and Scrip) on Account of Dominion Lands Revenue for the Fiscal Year ended March 31, 1912, compared with the previous Fiscal Year.

Particulars.	1911–12.	1910–11.	Increase.	Decrease.	Net increase.		
Crown Timber Agencies	\$ cts. ,635,980 27 382,396 92 668,664 14 234,497 66 56,497 74	373,887 62 757,304 55 209,228 56 69,054 59	8,509 30 25,269 10	\$ cts. 	\$ cts.		

CHAS. H. BEDDOE,

Superintending Accountant.

DEPARTMENT OF THE INTERIOR,
ACCOUNTS BRANCH,
OTTAWA, May 31, 1912.

L.—Statement of Chinese Immigration Revenue Collected during the Fiscal Year 1911-12.

	, to	1, 1911,	April	artment,	erce Der	Commo	and	Trade
\$2,078,383								
				October				
971,339							912	1
\$3,049,722								

	Number of Chinese Exempt.	Paying H	ead Tax.	Registration	for Leave.			
Port.		Number of Chinese.	Amount.	Number.	Amount.		Total Revenue.	
			8		\$	\$	\$	
Victoria Vancouver Nanaimo	3	4,382 1,432 1 223 3 6	2,191,000 716,000 500 111,500 1,500 3,000 5,000 9,000 4,000	2,518 1,785 9 1 3 4 2	2,518 1,785 9 1 3 4 2	400 1,550 500 950	2,193,918 719,335 1,000 112,459 1,501 3,003 4 4 5,002 9,500 4,000	
All Ports	498	6,083	3,041,500	4,322	4,322	3,900	3,049,722	

CHAS. H. BEDDOE,

Superintending Accountant.

DEPARTMENT OF THE INTERIOR,
ACCOUNTS BRANCH,
OTTAWA, May 31, 1912.

No. 28.

REPORT OF THE SCHOOL LANDS BRANCH

DEPARTMENT OF THE INTERIOR. SCHOOL LANDS BRANCH. OTTAWA, June 22, 1912.

W. W. CORY, Esq., C.M.G., Department of the Interior, Ottawa.

Sir.—I have the honour to submit the following report on the business of the School Lands Branch of the department for the fiscal year ending March 31, 1912.

SALES.

It was the intention to have held a series of auction sales of school lands at a number of points in the province of Saskatchewan during the autumn of 1911, but, owing to the lateness of the harvest, and the partial failure of the crop, it was found advisable in the interests of the school lands fund to postpone the sales, and consequently no general auction sales were held during the past fiscal year.

A few parcels were, however, disposed of at public auction as follows:-

MANITOBA.

Parts of legal subdivisions 11, 14 and 15 of section 11, township 21, range 2, east of the principal meridian, comprising 103.60 acres, were sold for \$3,305.76, or an average price of \$31.88 per acre. .

SASKATCHEWAN.

Section 29, township 17, range 23; S.W. 1 section 29, township 19, range 22; part S.E. 4 section 11, township 22, range 18, all W. 2nd M., comprising 793.24 acres in all, were sold for \$33,507.82, an average price of \$42.24 per acre.

The southwest quarter of section 11, township 45, range 19 west of the 2nd meridian, comprising 158 acres, was also sold for \$7,058, an average price of \$44.57 per acre.

In addition to the foregoing sales at public auction a number of small parcels of land were sold to railway companies, under the provisions of the Railway Act, for right-of-way and other purposes of the railway, as follows:-

Manitoba	99.37 acres for	\$ 903 00
Saskatchewan		7,303 77
Alberta	335.07 "	5,022 24

Sales were also made to boards of school trustees, under the provisions of the Dominion Lands Act, of small parcels, not exceeding four acres, for school sites, namely:-

Saskatchewan	 	 	 	 	 66	acres for	\$630	00
Alberta	 	 	 	 	 38	44	380	00

The total area sold in each province during the fiscal year was:-

Manitoba: 203.05 acres for \$4,208.76, or an average price of \$20.73 per acre. Saskatchewan: 1,517.27 acres for \$48,429.59, or an average price of \$31.92 per acre. Alberta: 373.07 acres for \$5,402.54, or an average price of \$14.48 per acre.

The total area sold in each province from the beginning to March 31, 1912, and the amount represented by such sales, after making the necessary deductions for cancellations and for changes in area, are as follows:—

MANITOBA.

Area sold to March 31, 1912acres.	577,255.74
Amount represented by such sales	\$5,528,932 19
Town lots, of which no area is given	5,806 00
Total amount represented by sales	5,534,738 19
Average price per acre	9 60
Total amount collected	3,096,104 25

Of the above sum \$30,000 was advanced to the province, leaving the amount of principal collected and standing to the credit of the fund \$3,066,104.25.

SASKATCHEWAN.

Area sold to March 31, 1912	3
Amount represented by such sales	3
Sales of town lots of which no area is given 771 00	0
Total amount represented by sales 6,860,004 48	3
Average price per acre	3
Amount collected, and standing to the credit of the fund. 2,033,865 73	1

ALBERTA.

Area sold to March 31, 1912acres.	557,646.27	7
Amount of principal represented by such sales\$6,	,429,481 89	9
Average price per acre	11 58	3
Amount of principal collected and standing to the		
credit of the fund on March 31, 1912	770,403 63	3

GRAZING.

A number of grazing permits were issued during the fiscal year for school lands in each province, as follows:—

ManitobaSaskatchewanAlberta	 810
Total	 1,332

There are still 244 grazing leases in force in the three provinces, but these will shortly expire, and, if renewed, will be in the form of grazing permits.

The revenue from leases and grazing permits during the fiscal year was:-

Manitoba	\$ 1,965 37
Saskatchewan	
Alberta	\$10,434 46
Total	\$25,968 26

i

SESSIONAL PAPER No. 25

HAY.

The revenue from haz	y leases and permits	in each province,	was as follows:-
----------------------	----------------------	-------------------	------------------

Manitoba\$ 942 90)
Saskatchewan	1
Alberta	
	-
Total\$7,716 55	5

COAL

The revenue from this source from leases and permits for domestic purposes, was:-

Saskatchewan Alberta			
Total.			\$19,622,00

The number of coal leases still in force is 89.

Attached hereto are three statements, lettered respectively, 'A.,' 'B.' and 'C.,' showing, duly classified, the revenue from all sources during the fiscal year, the net total for each province being as follows:-

Manitoba	\$ 377,710 14
Saskatchewan	539,133 98
Alberta	673,029 30
Total	\$1,589,873 42

Of the above sum, \$60,795.66 was collected through the agencies, and the balance of \$1,529,077.86 at head office.

Under the provisions of the orders in council in that behalf, the net revenue collected from the school lands in each province during the fiscal year, after deducting the principal moneys and the cost of management, was paid over to the government of each province.

The amount to be paid over was arrived at as follows:-

MANITOBA.

0 055510 14

Less principal moneys	
Revenue other than principal moneys Less cost of management	\$ 108,939 90 9,340 84
Amount to be paid to province	\$ 99,599 06
SASKATCHEWAN,	
Total net revenue	\$ 539,133 98 344,932 94
Revenue other than principal moneys Less cost of management	\$ 194,201 04 9,521 11
Amount to be paid to the province	\$ 184,679 93

ALBERTA.

Total net revenue for fiscal year	
Revenue other than principal moneys Less cost of management	
Amount to be paid to province	\$ 185,249 76

In addition to the foregoing amounts, the following sums were paid to the Provincial Governments of Manitoba, Saskatchewan and Alberta as the interest accrued on the school lands funds, namely:—

Manitoba	. \$ 88	3,094 57
Saskatchewan	. 58	8,873 11
Alberta		0,797 04

Adding the above amounts to the sums paid over to the province for revenue collected, the total payments to the provinces for the fiscal year are as follows:—

Manitoba	\$187,693 63
Saskatchewan	243,553 04
Alberta	236,046 80

Statement 'D.,' hereto attached, shows the revenue collected through the agencies during the fiscal year.

Statements 'E.,' 'F.' and 'G.,' hereto attached, show the balance standing to the credit of each of the school lands funds on April 1, 1912:—

Manitoba	
Alberta.	
	\$6,870,373 59

The total expenditure in connection with the school lands during the fiscal year was \$28,252.78, and as the total revenue was \$1,589,873.42, the cost of management

was less than 2 per cent of the revenue collected.

The following is a statement of the work done during the fiscal year, which, however, gives only an approximate idea of the volume of business.

Letters sent out	,470
Letters received	,990
Statements of accounts rendered	,000
Receipts issued	764
Grazing permits issued	332
Cultivation permits issued	19
Coal leases issued	21
Assignments registered	454
Requisitions for patent	466

Respectfully submitted,

FRANK S. CHECKLEY,

Chief of Branch.

Chief of Branch.

FRANK S. CHECKLEY,

SESSIONAL PAPER No. 25

STATEMENT of Revenue collected from School Lands for the Fiscal Year from April 1, 1911, to March 31, 1912, both dates inclusive.

25

STATEMENT A. - MANITOBA.

	Total.	& cts.	9,900 90 20,657 36 41,547 57 24,774 46 10,512 65 6,681 10 16,929 70 69,635 24 56,407 94	28,010 63 31,536 61 43,426 53	360,020 69 18,648 45	378,669 14 177 85	304 50 304 50	378,542 49 882 35	377,710 14
Bogistration	Fees.	e cts.	1			177 85	177 85	177 85	177 85
	Hay.	& cts.			1,234 30	1,234 30	1,234 30 275 00	959 30 16 40	942 90
	Timber.	cts.	7 50	82 50	98 00	3,028 96	3,028 96 29 50	2,999 46 65 92	2,933 54
	Grazing.	& cts.	125, 72 193, 57 10 10 10 10 10 10 10 10 10 10 10 10 10	215 76 218 52 191 48	1,420 65 602 32	2,022 97	2,022 97	2,022 97 57 60	1,965 37
	Cultivation.	ets.	50 00 33 00 27 00 17 50	30 00 5 50 63 50	196 50	196 50	196 50	196 50	156 50
	Total.	e cts.	9,725,18 20,463,46 41,512,47 24,755,26 10,459,35 6,623,84 69,352,84 56,292,84	27,764 87 31,313 59 43,089 05	358,305 54 13,880 87	372,186 41	372,186 41	372,186 41 652 43	371,533 98
32	Interest.	ets.	1,966 27 5,681 52 14,285 27 8,474 70 2,611 49 1,450 74 3,967 95 21,392 13 14,516 29	8,736 81 7,284 40 9,455 63	99,823 20 3,195 31	103,018 51	103,018 51	103,018 51 254 77	102,763 74
Sales.	Principal.	ets.	7,758 91 14,781 94 27,227 20 16,280 56 7,847 86 5,203 05 12,954 89 47,961 71 41,776 55	19,028 06 24,028 19 33,633 42	258,482 34 10,685 56	269,167 90	269,167 90	269,167 90 397 66	268,770 24
M. A.	Mouth.	1911.	April May June July August September October November	January. February March.	Agencies	Registration Fees	Fees transferred to Dominion Lands	Refunds	Total

School Lands Branch,
Department of the Interior,
Ottawa, May 20, 1912.

FRANK S. CHECKLEY,
Chief of Branch.

3 GEORGE V., A. 1913

STATEMENT B,—SASKATCHEWAN.

STATEMENT of Revenue collected from School Lands for the Fiscal Year from April 1, 1911, to March 31, 1912, both dates inclusive.

	[0]									
•	Discisor	Tatomost	Total.	Cultivation.	Grazing.	Timber.	Hay.	Coal.	Registration Fees.	Total.
	r rincipat.	Interest.								
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	ets.	s cts.	\$ [cts.	& cts.
	8,385 72 30,592 76 51,298 62			12 50 15 00	845 40 730 34 530 82	5 00	200	144 59		11,836 90 37,501 53 87,299 07
	74,765 29 6,062 01 7,510 99			111 24 25 25 25 25			8			
	24,407 75 39,640 46 38,765 23	6,306 40 21,458 50 12,994 93	30,714 15 61,099 02 51,760 16	9 00				183 92 5 00		
	26,683 27 14,248 58 21,122 81	10,577 85 4,408 89 9,488 93	37,261 12 18,657 47 30,611 74	15 00	2,074 73 2,574 45 1,895 66		1 50			39,335 85 21,233 42 32,522 40
:	343,483 49 2,932 67	168,509 89 4,488 63	511,993 38	104 98	10,502 18 3,363 48	1,732 00	5,894 54	474 96 707 70		523,085 50 19,122 02
	346,416 16	172,998 52	519,414 68	107 98	13,865 66	1,737 00	5,899 54	1,182 66	408 65	542,207 52 408 65
Fees transferred to Dom. Lands	346,416 16	172,998 52	519,414 68	107 98	13,865 6 (1,737 00	5,899 54	1,182 66	408 65	542,616 17 1,115 75
	346,416 16 1,483 22	172,998 52 560 49	519,414 6S 2,043 71	107 98	13,865 66	1,726 25	4,794 54	1,182 66 5 00	408 65	541,500 42 2,366 44
Total	344,932 94	172,438 03	517,370 97	107 98	13,568 43	1,726 25	4,774 04	1,177 66	408 65	539,133 98

School Lands Branch,
Department of the Interior,
Ottawa, May 20, 1912.

Chief of Branch.

FRANK S, CHECKLEY,

STATEMENT C.—ALBERTA.

STATEMENT of Revenue collected from School Lands for the Fiscal Year from April 1, 1911, to March 31, 1912, both dates inclusive.

				PER.	No. 25	25.58 25.58 25.58	70 91 94 75 70 94		21 20 99 56 92 43	07 56 25 09	674,532 65	972 55 481 50	674,491 05 1,126 75	673,364 30	335 00	
nclusiv		Total		₩	2,357 245,153 17,747		47,97 114,55 42,87		17,321 17,599 16,292	651,507 23,025		674,	<u> </u>		್	
oth dates i		Registration	rees.	& cts.							439 90	439 90	439 90	439 90		
31, 1912, b		Petroleum.		& cts.						2 00	5 00	2 00	5 00			
to March		Coal.		& cts.	288 00 1,059 25 1,73 00	856 00 336 00	$\begin{array}{c} 1,696 & 00 \\ 2,139 & 10 \\ 2,004 & 77 \end{array}$		404 80 1,613 63 485 99	11,173 24 7,884 70	19,057 94	19,057 94	19,057 94 613 60	18,444 34		
STATEMENT C.—ALBERTA. ed from School Lands for the Fiscal Year from April I, 1911, to March 31, 1912, both dates inclusive.		Hay.	,	& cts.	2 00	40 00	20			45 40	2,529 61	2,529 61	2,057 61 58 00	1,999 61	ases	
C.—ALBERTA [ear from April		Timber.		\$ cts.					267 39	268 10 1,668 12	1,936 22	1,936 22 9 50	1,926 72 50 17	1,876 55	Petroleum Le	
MENT C. Fiscal Year		Grazing.		\$ cts.	514 60 260 79 275 20	457 95 261 61 156 52	247 13 193 81 298 80		1,206 79 2,165 86 1,946 35	7,965 41 2,831 37	10,796 78	10,796 78	10,796 78	10,434 46	plication for	
STATEMENT nds for the Fiscal		Total.		& cts.	1,555 10 243,831 27 17,299 36	76,282 80 45,107 36 6,001 06	46,027 78 112,261 84 40,567 17		15,708 90 13,820 07 13,592 70	632,055 41 8,151 69	640,207 10	640,207 10	640,207 10 37 66	640,169 44	ccount of Ap	
Sehool La		es.	Interest.	& cts.	301 41 31,334 50 7,208 03	28,539 08 13,552 27 2,088 97	13,549 00 33,507 22 12,780 69		4,881 84 4,866 20 5,108 70	157,777 91 4,002 82	161,780 73	161,780 73	161,780 73	161,780 73	910-1911 on a	
lected from	2	Sales.	Principal.	. cts.	1,253 69 212,496 77 10,091 33	31,555 09 31,555 09 3,912 09	32,478 78 78,754 62 27,786 48		10,827 06 8,953 87 8,484 00	474,277 50 4,148 87	478,426 37	478, 426 37	478,426 37 37 66	478,388 71	Fiscal Year 1	
STATEMENT of Revenue collect		Month.		1911.	April May June	AugustSeptember.	October November December	1912.	January. February March	Agencies	Registration Fees	Fees transferred to Dom. Lands	Refunds	Total	Refund of amount received during Fiscal Year 1910-1911 on account of Application for Petroleum Leases.	

OTTAWA, May 20, 1912, DEPARTMENT OF THE INTERIOR,

SCHOOL LANDS BRANCH,

D .- STATEMENT of Revenue from School Lands collected by the different Agencies, during the Fiscal Year ending March 31, 1912.

Total.		es cts.	11,385 84 2,989 17 2,973 44 1,261 69 4,051 75 2,3140 15 2,3140 15 2,3140 15 2,3140 15 1,106 73 1,106 73 1,303 03 6,950 06 3,708 78 5,919 86 1,25 1
Petroleum.		& cts.	2 00 2 00 9
Coal		\$ cts.	682 70 682 70 5 00 7 5 00 3,251 50 1,804 80 1,188 40 1,565 00
Hav		& cts.	805 40 188 30 240 60 224 66 527 55 348 75 363 20 408 70 789 95 71 1,098 70 789 95 71 125 55 71 80 826 10 920 16
Timber		& cts.	2,771 21 159 75 9 25 1,710 00 1,710 00 512 55 512 65 512 65 1,571 12 20 80 1,571 12 20 80 6,864 53
Craving		& cts.	57 60 512 15 513 54 513 36 109 35 109 35 109 60 604 08 380 67 160 00 160 00
Cultivation		ets.	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
Total	7400	& cts.	7,751 63 4,288 72 1,840 52 2,577 89 2,667 60 5,957 82 147 60 3,682 41 540 17
	Interest.	e cts.	1,659 86 990 79 990 79 544 47 1,787 85 1,787 85 1410 82 147 60 433 13 187 58
Sales	Principal.	& cts.	6,091,77 3,297,93 1,295,86 2,062,92 879,75 547,00 3,249,28 352,59
A According	7841C103.		Winnipeg Brandon Dauphin Bauphin Regina. Yorkton. Yorkton. Humboldt Humboldt Moosejaw Saskatoon Saskatoon Sakatoon Calgary Red Deer Edmonton Peace River Grande Prairie.

School Lands Branch,
Department of the Interior,
Ottawa, May 20, 1912.

FRANK S. CHECKLEY, Chief of Branch.

STATEMENT E.—MANITOBA SCHOOL LANDS.

STATEMENT of Revenue and Expenditure on account of Manitoba School Lands for the Fiscal Year ended March 31, 1912.

Particulars.		Period.		Dı		Cr.
				\$	cts.	\$ cts.
By balance on April 1, 1911 " sales. " cultivation permits " timber dues, hay permits, grazing rentals. " registration fees. " interest on fund. To cost of management at Ottawa " salaries, printing, advertising and general expenses " revenue and interest paid to Manitoba Government " interest on fund paid to Manitoba Government " balance on March 31, 1912	12 months " 12 months " 12 months	s ended Marcl	n 31, 1912	5,5 3,8 99,5	40 30 00 54 99 06 94 57	2,797,334 01 371,533 98 156 50 5,841 81 177 85 88,094 57
				3,263,1	38 72	3,263,138 72

FRANK S. CHECKLEY,

Chief of Branch.

DEPARTMENT OF THE INTERIOR,
SCHOOL LANDS BRANCH,
OTTAWA, June 3, 1912.

STATEMENT F.—SASKATCHEWAN SCHOOL LANDS.

STATEMENT of Revenue and Expenditure on account of Saskatchewan School Lands for the Fiscal Year ended March 31, 1912.

Particulars.		Period.	•	Dr	•	Cr.
By balance on April 1, 1911 sales cultivation permits timber dues, hay permits, grazing and coal rentals registration fees interest on fund To cost of management at Ottawa salaries, printing, advertising and general expenses revenue and interest paid to Saskatchewan Government interest on fund paid to Saskatchewan Government	" " " 12 months	s ended March	11 11 11 11	5,5 3,9 184,6 58,8	540 30 980 81 379 93 373 11	\$ cts. 1,688,932 77 517,370 97 107 98 21,246 38 408 65 58,873 11
balance on March 31, 1912				2,033,8		2,286,939 86

FRANK S. CHECKLEY,

Chief of Branch.

DEPARTMENT OF THE INTERIOR,
SCHOOL LANDS BRANCH,
OTTAWA, June 3, 1912.

STATEMENT G.-ALBERTA SCHOOL LANDS.

STATEMENT of Revenue and Expenditure on account of Alberta School Lands for the Fiscal Year ended March 31, 1912.

Particulars.		Period.			Dr.		Cr.
By balance on April 1, 1911	12 months "" 12 months	ended Ma	rch 31, 1	912.) 30) 53) 76 7 04 3 63	\$ cts. 1,292,014 92 640,169 44 32,419 96 439 90 50,797 04

FRANK S. CHECKLEY,

Chief of Branch.

DEPARTMENT OF THE INTERIOR,
SCHOOL LANDS BRANCH,
OTTAWA, June 3, 1912.

No. 29.

REPORT OF THE LAND PATENTS BRANCH.

DEPARTMENT OF THE INTERIOR,

LAND PATENTS BRANCH,

OTTAWA, June 27, 1912.

W. W. CORY, Esq., C.M.G., Deputy Minister of the Interior, Ottawa.

SIR,—I have the honour to submit my report on the work performed in the Land Patents Branch of the Department of the Interior during the twelve months which ended on March 31, 1912, and the several statements in relation thereto marked A. to Y. inclusive.

LETTERS PATENT.

The number of letters patent issued during the period mentioned was 19,354, covering an area of 3,155,388 acres, which may be classified as follows:—

	Patents.	Acres.
Province of Manitoba	973	143,849
" Saskatchewan	11,124	1,786,466
" Alberta	7,031	1,189,463
" British Columbia	186	33,202
Yukon Territory	34	2,368
Northwest Territories	6	40
Total	19,354	3,155,388

Seventeen thousand and seventeen of these patents were for land the title to which had been earned under homestead entry, covering an area of 2,694,715 acres, and the remaining 2,337 patents for 460,673 acres, were for grants made to the Hudson's Bay Company, railway companies, sales, school land sales, half-breed scrip locations and other grants. There was a decrease of 2,400 patents and of 554,900 acres, as compared with the preceding year.

There are recorded in the Land Patents Branch 239,458 letters patent, aggregating an area of 65,752,724 acres, which have been issued since 1873 to March 31, 1912. A statement recently compiled showing the number of patents issued each year during that period with the acreage patented in e..ch of such years, is appended hereto.

To the area of patented lands above referred to. namely, 65,752,724 acres, should be added an approximate area of 5,529,600 acres granted, up to March 31, 1912, to the Hudson's Bay Company by notifications issued under the provisions of the statute in that behalf (in addition to this 582,056 acres have been conveyed to the Hudson's Bay Company by letters patent) and 2,012,416 acres vested in the province of Manitoba as swamp lands by orders in council passed from time to time since 1885, making a total area of 73,294,740 acres of Dominion lands alienated, being equal to 3,181 full townships, or to 114,516 square miles.

The number of acres surveyed since the beginning of surveys to the end of March of this year is 156,092,544 acres, which is equal to 6,775 full townships, or to 243,900 square miles.

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SESSIONAL PAPER No. 25

Brandon . .

LAND DISPOSED OF.

Fifty-two thousand six hundred and eighty entries recorded in this branch were granted during the year, aggregating an approximate area of 8,714,040 acres, made up as follows:—

			Acres.
Homestead entries—			
Manitoba	3,158		
Saskatchewan	20,484		
Alberta	15,184		
British Columbia	325		
		39,151	6,264,160
Pre-emption entries—			
Saskatchewan	6,929		
Alberta	3,682		
		10,211	1,633.760
Purchased homesteads—			
Saskatchewan	1,043		
Alberta	365		
		1,408	225,280
South African volunteer homesteads—			
Manitoba	6		
Saskatchewan	920		
Alberta	857		
		1,783	570,560
Half-breed scrip locations—			
Manitoba	6		
Saskatchewan	41		
Alberta	80		
		127	20,280
			-
Total		52,680	8.714,040

There was a decrease in the number of homestead entries granted as compared with the previous year of 5,328 entries.

By land agencies the 39,151 homestead entries above referred to were made as follows:—

MANITOBA.

Diamoni	0.1
Dauphin	1.012
	,
Winnipeg	2,095
	0 7 = 0
	3,158
SASKATCHEWAN.	
Dattleford	2.484
Battleford	
Estevan	937
Humboldt	1,721
Medicine Hat (part)	1,137
Moosejaw	4,083
Prince Albert	2,096
Regina	341
	2,967
Saskatoon	1
Swift Current	3,453
Yorkton	1,265
	20.484
	,102

ALBERTA.

Calgary	3,837
Edmonton	1,398
Grand Prairie	492
Lethbridge	567
Medicine Hat (part)	1,707
Peace River	452
Red Deer	1,731
	15,184
BRITISH COLUMBIA.	
Kamloops	287
New Westminster	
	325

The 39,151 entrants for homesteads represented 91,372 souls, as compiled from the information obtained from each entrant. Of these entries 9,531 were made by residents of the several provinces of the Dominion, 401 by Canadians who had returned from the United States and 2,132 by persons who had already obtained homestead entries, but which had either been cancelled by default or at the request of the entrants in order, in most cases, to enter for other land; 7,256 were made by persons from the British Isles; 10,577 by Americans; 3,121 by Austro-Hungarians; 1,781 by Russians; 1,160 by Norwegians; 964 by Swedes; 790 by Germans; 437 by Frenchmen; 159 by Belgians and the remaining 842 homestead entries were made by citizens of various other countries.

CANCELLED ENTRIES.

There were cancelled during the same period, 24,909 entries comprising 18,608 homestead entries, 6,103 pre-emption entries, 175 purchased homestead entries and 23 sales.

SALES.

One thousand and seventy sales were made during the fiscal year for 52,517 acres of land, which included 244 sales of townsite lots in the railway belt in the province of British Columbia, leaving 826 ordinary sales of Dominion lands with an average acreage for each sale of about 634 acres.

HALF-BREED SCRIP.

In connection with the extinguishment of the Indian title to the territory covered by the adhesion to Indian Treaty No. 5, comprising Churchill, York Factory and other places, which adhesion treaty was concluded in 1908, 1909 and 1910, 86 claims, in addition to those which had been previously allowed, were approved under the authority of an order of the governor in council, bearing date May 24, 1911, a list of which claims was published at the time in the Canada Gazette. The scrip issued in satisfaction thereof was delivered last summer to the claimants personally by an officer of the government.

This last issue of scrip practically closes the issue of scrip to the half-breeds, whose claims arising out of the extinguishment of the Indian title have been, in my opinion, most liberally treated by royal commissions and the department at various times since 1876.

SOUTH AFRICAN VOLUNTEER CERTIFICATES.

Under the Volunteer Bounty Act, 1908, and amendments thereto, up to date 7,281 certificates have been issued entitling the volunteers, or their duly appointed substitutes, to select and enter for two adjoining quarter sections, aggregating 320 acres of land, of the class open to homestead entry, in the provinces of Manitoba, Saskatchewan and Alberta, subject to the performance of the settlement duties prescribed by the Dominion Lands Act with regard to ordinary homestead grants.

Of these certificates, 649 were located by the volunteers themselves, and 6,379 by their substitutes. Of those originally located by the volunteers, 360 were subsequently transferred to substitutes. Of the locations made by the volunteers or their

substitutes, 101 have been cancelled.

MILITARY BOUNTY AND NORTHWEST MOUNTED POLICE LAND WARRANTS.

A public notice, bearing date April 7, 1910, was issued by the department, which was published at the time in the Canada Gazette and several newspapers, containing a list of the names of the persons to whom 147 of the warrants above referred to, were issued many years ago for services rendered in connection with the Red River expeditions of 1870, 1871, 1872 and 1873, or for service in the Northwest Mounted Police, but which warrants were still held in the department owing to the fact that they had not been theretofore applied for by the grantees. It was stated in such public notice that the warrants in question would be delivered to the grantees thereof, or in the case of their death, to their personal representatives, upon satisfactory evidence being furnished the department.

Since the issue of this notice 26 of these warrants have been delivered, leaving still, in the custody of the department, at the present time, 121 of such warrants, which entitle the grantee or his assignee to a free grant, without actual residence or settlement duties, of a quarter section of Dominion lands, containing 160 acres of land of the class open to homesead entry in the provinces of Manitoba, Saskatchewan or

Alberta.

A list of these land warrants unclaimed, at this date, is appended hereto.

CLAIMS TO LAND.

Nearly all the claims which have been preferred by persons who were in actual and peaceable possession of land in the Peace River district at the time Indian Treaty No. 8 was concluded in the summer of 1899, to a free grant of the land they so occupied, not exceeding 160 acres, in so far as the lands affected have been surveyed, have been investigated in the Land Patents Branch and reported on and where such claims have been approved of by the Governor in Council patents therefor have been issued.

Squatters' claims and other claims to land and applications to purchase land have been likewise dealt with in this branch and reported on during the year.

RAILWAY RIGHTS OF WAY.

The work in connection with the issue of letters patent to the several railway companies for their respective rights of way and station grounds over available Dominion lands, or lands transferred to them by the entrants therefor, which is being attended to in the technical office of this branch, is progressing satisfactorily.

ACCOUNTS AND REVENUE.

There are at present kept in the branch about 30,000 accounts in connection with purchased homesteads, pre-emption sales and ordinary sales and some 12,000 seed grain and provision accounts.

During the last fiscal year nearly \$2,000,000, including about \$429,000 for interest on deferred payments, was received on account of the sales above mentioned and \$119,634.13, including about \$16,000 on account of interest, was received in payment for seed grain and provision liens.

All the items which made up this large sum of money after having been care-

fully verified, were posted in their respective accounts.

In connection with these accounts some 50,000 notices with statements of accounts were sent during the year and 2,894 receipts were issued for payments made at the department amounting to \$443,333.68.

REFUNDS.

In connection with sales and moneys collected for the value of improvements on cancelled homesteads there were 2.393 refunds made amounting to \$155,231.07, and in connection with seed grain accounts 180 refunds, amounting to \$3,012.43. The latter refunds were mostly for duplicate payments or for payments which had been sent to the department instead of to the provincial authorities, by whom, in these cases, the seed grain had been advanced to the settlers and the refunds made on account of sales were for overpayments or payments made in advance on account of purchased homesteads or pre-emptions, which is contrary to our practice.

RECORDS.

An inventory was recently made of all records, books and plans of this branch, which shows that there are 1,336 volumes of large sized books, such as township and other large registers, patent indexes, libers of patents issued, military bounty grants and half-breed records, registers of assignments, &c., and 8,290 plans of townships upon which a record is kept of all lands patented, of townsites, settlements, rights of way and station grounds of railways, and of roads and trails, &c.

There are recorded in the branch 239.458 patents, aggregating an area of 65,752,-

724 acres, as already stated, and some 18,000 assignments.

These books and plans constitute a complete record of all the land transactions of the department since its inception in 1873, with the exception of the record containing the copies of letters patents which were issued between 1873 and July, 1883, which are recorded in the Department of the Secretary of State.

ACCOMMODATION.

Our present quarters, for the past few years, both for the proper carrying on of the work of the branch, the accommodation of the staff and the keeping of the records, which latter are increasing from year to year, have been most inadequate.

I, therefore, take this opportunity of calling attention to the urgent necessity of providing suitable quarters for the accommodation of the staff and records of the Land Patents branch.

I am pleased to be able to state that the work of the branch at the present time is in a satisfactory condition, the issue of letters patent, the correspondence and the posting of all entries being up to date.

In conclusion I desire to express my appreciation of the services rendered by the members of the branch, most of whom have been labouring under great difficulty and personal discomfort in the performance of their official duties, owing to the lack of accommodation above referred to.

The following is a summary showing, approximately, the work performed in the Land Patents Branch, during the fiscal year which ended on March 31, 1912:—

T111 1 1, 1, 1, 1	105 000
Files dealt with	195,696
Letters sent, written in the branch	24,000
" assistant secretary's office	15,000
Notices sent to patentees	18,000
Notices sent to purchasers, with statements of accounts	50,000
Patents issued and forwarded	19,354
	52,680
Land entries checked and posted	
Entries cancelled and recorded	24,909
Receipts issued	2,894
Requisitions for refunds prepared	2,573
Payments amounting to about \$2,000,000 checked and posted	
Assignments registered	373
Instruments appointing substitutes under the Volunteer	0.0
	1,392
Bounty Act, 1908, registered	1,000
Half-breed claims dealt with and requisitions for scrip	
issued	86
Applications to purchase land dealt with	1,000
Seed grain certificates issued	1,432
Seed grain discharges issued	1,727
	182
Certified copies of patents prepared	102
Land agents' cash statements, stubs of receipts, &c	
checked and verified for auditor general's office	

A great number of plans and sketches were prepared, as well as special reports and memoranda to council, &c., of which no record was kept.

I have the honour to be, sir,

Your obedient servant,

N. O. COTE,

Chief of Branch and Registrar
of Dominion Lands Patents.

A.—Statement of Letters Patent covering Dominion Lands situate in Manitoba, Saskatchewan, Alberta, Northwest Territories, British Columbia and the Yukon Territory, issued from the Department of the Interior during the Fiscal Year ending March 31, 1912, as compared with the Fiscal Year ending March 31, 1911, and recorded in the Land Patents Branch.

Nature of Grant. Patents. Acres. Patents	Acres.
1 Alberta Railway and Irrigation Co's sales 154 82 574	08 66,933
Assignment of mortgages 5 15,060 15,060 4 British Columbia homesteads 65 17,878 5 Coal lands sales 10 1,496 6 Coal surface sales 2 117 7 Commutation grants 3 101 18,976 18,99 101 18,976 18,99 102 118,975 18,99 103 104 104 104 105 10	12,431 16,689 15,779 20,779 11,244 11,3,001,930 11,588 12,33 17,1588 12,320 13,001,930 14,496 15,213 13,496 16,2,213 13,22 15,634 11,496 14,496 15,213 16,66 17,1096 18,3830 19,634 11,096 11,586 12,213 13,001,930 14,496 15,213 16,213 16,213 17,586 17,1586 17,1586 17,1586 17,1586 17,1586 17,1586 17,1586 17,1586 17,1586 17,1586 17,1586 17,1586 18,252 19,252 10,252 11,496 11,496 12,213 13,3830 14,496 15,442 16,213 1
Totals	3,710,288

N. O. COTE,

Chief of Branch and Registrar of Dominion Lands Patents.

B.—Statement of Letters Patent covering Dominion Lands situate in the Province of Manitoba, issued from the Department of the Interior during the Fiscal Year ending March 31, 1912, as compared with the Fiscal Year ending March 31, 1911, and recorded in the Lands Patents Branch.

	Nature of Grant.	From April March, 3		From April 1, 1910, to March 31, 1911.		
Number.	Nature of Grant.	Patents.	Acres.	Patents.	Acres.	
2 3 4 5 6 7 8 9	Assignment of mortgages. Commutation grants Homesteads. Hudson's Bay Co. Manitoba Act grants. Manitoba University grants. Mining lauds sales. Northwest half-breed grants. Parish sales Quit claim, special grants (154 acres).	5 3 692 1 6 2 2 2 4 6 1	101 106,350 13,216 446 3200 274 687 618	1 600 2 3 3 2 10	24 92,271 29,694 71 320 1,958	
11 12	Railways:— Canadian Northern Railway Co Canadian Pacific Railway grants	1 14	3 222	72 2	12,472 19	
13 14 15			156	1 6 1	7 133 12	
18	Manitoba Southwestern Colonization Ry Co. Sales	5 60 113 12	42 4,194 16,418 802	90 141	6,078 19,097 323	
	Totals	973	143,849	951	163,555	

N. O. COTE,

Chief of Branch and Registrar of Dominion Lands Patents.

C.—Statement of Letters Patent covering Dominion Lands situate in the Province of Saskatchewan, issued from the Department of the Interior during the Fiscal Year ending March 31, 1912, as compared with the Fiscal Year ending March 31, 1911, and recorded in the Land Patents Branch.

ber,	Nature of Grant.	From April March 3		From April 1, 1910, to March 31, 1911.		
Number.		Patents.	Acres.	Patents.	Acres.	
1 2 3 4 .5	Homesteads. Hudson's Bay Co. License of occupation Military bounty grants Military homesteads. Mining lands sales.	10,156 9 13 4 6	1,611,788 72,990 640 1,877	11,740 6 10 2 3	1,860,253 10,196 320 960 126	
7	Mineral rights (1,160 acres). Northwest half-breed grants. Parish sales. Quit claim, special grants (1,761 acres). Railways:—	7 63 1 11	9,563 226	16 180	33,426	
11 12 13	Canadian Northern Railway Co	23 91	3,334 4,442	109 107	25,909 3,744	
14	Branch	1	42	52	270,666	
15 16 17 18 19	tion grounds	10 24 1	48 164 12	45 74 11 4	1,537 1,203 169 2,080	
	Qu'Appelle, Long Lake and Saskatchewan Railroad and Steamboat Co. Sales School lands sales. Special grants.	67 385 134 118	14,803 49,253 13,410 3,874	10 274 157 78	2,034 37,756 16,293 1,922	
	Totals	11,124	1,786,466	12,893	2,268,594	

N. O. COTE,

Chief of Branch and Registrar of Dominion Lands Patents.

D.—Statement of Letters Patent covering Dominion Lands situate in the Province of Alberta, issued from the Department of the Interior during the Fiscal Year ending March 31, 1912, as compared with the Fiscal Year ending March 31, 1911, and recorded in the Land Patents Branch.

e:	Nature of Grant.	From April March 3		From April 1, 1910, to March 31, 1911.		
Number.	Nature of Grant.	Patents.	Acres.	Patents.	Acres.	
3 4 5	Alberta Railway and Irrigation Co's sales Coal lands sales Coal surface sales Homesteads Hudson's Bay Co	154 10 2 6,063 5	82,574 1,496 118 961,517 32,770 76	98. 45 2 6,619 3	66,933 9,779 50 1,049,389 31,698	
7 8 9 10 11	Leases License of occupation. Military bounty grants. Military homesteads. Mining lands sales. Mineral rights (19,075 acres). Northwest half-breed grants. Parish sales.	222 5 1 6 78 93	164 801 320 3,207 13,225 60	13 4 2 3 157 152	75 631 536 56 26,208	
14 15 16 17	Railways:— Calgary and Edmonton Railway Co Canadian Northern Railway Co Canadian Pacific Railway Co Canadian Pacific Railway grants, Souris	39 1 17	23,357 6 2,914	19	5,442	
18 19 20	Branch Grand Trunk Pacific Railway. Grand Trunk Pacific Branch Lines Co Manitoba and Southeastern Railway Co	51	1,234	1 184	160 1,506 160 26,298	
21 22 23	Sales. School lands sales Special grants. Totals	292 108 64 7,031		7,616	$ \begin{array}{r} 20,298\\ 6,971\\ 4,342\\ \hline 1,253,860 \end{array} $	

N. O. COTE,

Chief of Branch and Registrar of Dominion Lands Patents.

E.—Statement of Letters Patent covering Dominion Lands situate in the Province of British Columbia, issued from the Department of the Interior during the Fiscal Year ending March 31, 1912, as compared with the Fiscal Year ending March 31, 1911, and recorded in the Land Patents Branch.

r.	Nature of Grant.	From April March	l 1, 1911, to 31, 1912.	From April 1, 1910, to March 31, 1911.			
Number	Nautre of Glanc.	Patents.	Acres.	Patents.	Acres.		
$\frac{2}{3}$	British Columbia homesteads	106 65 1	15,060 17,878 152	84 86 2	12,431 6,389 73		
4 5	Railways:— Canadian Pacific Railway grants " roadbed and station grounds		20	1 1	280 42		
6 7	Kootenay Central Railway	9	86 6	5	123		
	Totals	186	33,202	179	19,338		

N. O. COTE.

Chief of Branch and Registrar of Dominion Lands Patents.

DEPARTMENT OF THE INTERIOR,

LAND PATENTS BRANCH,

OTTAWA, June 27, 1912.

F.—Statement of Letters Patent covering Dominion Lands situate in the Yukon Territory, issued from the Department of the Interior during the Fiscal Year ending March 31, 1912, as compared with the Fiscal Year ending March 31, 1911, and recorded in the Land Patents Branch.

er.	Nature of Grant.	From Apri March	l 1, 1911, to 31, 1912.	From Apri March	1 1, 1910, to 31, 1911.
Number.		Patents.	Acres.	Patents.	Acres.
1 2 3	Yukon Territory homesteadssalesspecials	$\begin{array}{c}2\\31\\1\end{array}$	213 2,155	110	
	Totals	34	2,368	110	3,958

N. O. COTE.

Chief of Branch and Registrar of Dominion Lands Patents.

G.—Statement of Letters Patent covering Dominion Lands situate in the Northwest Territories, issued from the Department of the Interior during the Fiscal Year ending March 31, 1912, as compared with the Fiscal Year ending March 31, 1911, and recorded in the Land Patents Branch.

er.	Nature of Grant.	From April 1, 1911, to March 31, 1912. From April 1, 191 March 31, 191					
Number		Patents.	Acres.	Patents.	Acres.		
2	HomesteadsSales.	5	40	2 3	16 967		
	Totals	6	40	5	983		

N. O. COTE,

Chief of Branch and Registrar of Dominion Lands Patents.

DEPARTMENT OF THE INTERIOR,
LAND PATENTS BRANCH,
OTTAWA, June 27, 1912.

H.—Statement showing number of Patents forwarded to the several registrars of the Land Registration districts of the Provinces of Alberta, Saskatchewan, the Northwest Territories and the Yukon Territory, and the number of notifications mailed to patentees during the year ended March 31, 1912.

Registration District.	No. of Patents sent to Registrars.	No. of Notifications mailed to Patentees.
Assiniboia. East Saskatchewan West Saskatchewan Yorkton Saskatcon Moosejaw Cannington North Alberta South Alberta Northwest Territories Yukon	1,429 758 - 1,134 1,177 3,557 3,078 - 28 4,075 2,992 - 6 35	1,396 743 1,098 1,020 3,429 3,003 32 4,018 2,825 7
Totals	18,269	17,609

N. O. COTE,

Chief of Branch and Registrar of Dominion Lands Patents.

I.—Statement showing the number of Letters-Patent issued by the Department of the Interior for Dominion Lands since 1873 and the number of acres patented.

I	No. of Patents issued.	Acreage.	
May, 1873. to 31st December, st January, 1874, to 31st December, st January, 1875, to 31st October, Year ended 31st October, """""""""""""""""""""""""""""""""""	1873 1874 1875 1876 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887, 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1900 1901 1902 1903	22,431 22,854	67, 200 92, 320 74, 240 50, 880 478, 840 462, 880 426, 080 173, 440 460, 862 506, 785 831, 341 909, 604 898, 464 647, 644 411, 073 549, 257 502, 601 420, 238 66, 102 348, 964 531, 861 499, 856 447, 671 714, 748 2, 686, 388 2, 982, 573 6, 191 3, 266, 388 2, 982, 573 6, 191, 336 6, 388, 273 4, 181, 344 2, 361, 336 6, 138, 977 4, 215, 324 3, 662, 258
11 () 19 11 11 11 17 ()	1911	21,754 19,354	3,710,28 3,155,38

N. O. COTE,

Chief of Branch and Registrar of Dominion Lands Patents.

i

J.—Statement showing the number of Homestead Entries made during the Fiscal Year 1911-12, as compared with Fiscal Year 1910-11.

Agency.	Manitoba.		Manitoba. Saskatchewan.		Alberta.		British Columbia.		Remarks.	
	1911-12.	1910-11.	1911–12.	1910–11.	1911-12.	1910 -11.	1911-12.	1910-11.		
Battleford. Brandon Calgary Dauphin. Edmonton. Estevan Grande Prairie. Humboldt. Kamloops. Lethbridge Medicine Hat. Moosejaw. New Westminster Peace River. Prince Albert Regina. Red Deer Saskatoon Swift Current. Winnipeg. Yorkton Total	2,095	76 1,012	1,721 1,137 4,083	1,033 1,738 1,589 5,285	3,837 6,998 492 567 1.707 425	5,450 5,112 	287	202	No. of entries for fiscal year 1910-11 = 44,-479, 1911-12=39,151. Net decrease for fiscal year1911-12=5,328	

RECAPITULATION.

Month.	Mani	toba.	Saskate	ehewan.	Alberta.		British Columbia.	
Month.	1912.	1911.	1912.	1911.	1912.	1911.	1912.	1911.
1911. April May June July August September October November December	305 333 356 289 295 214 217 231 240	324 281 354 307 261 258 364 309 159	2,483 2,328 2,516 2,446 2,194 1,679 1,498 1,422 1,032	4,240 3,745 3,440 2,576 1,958 1,530 1,845 1,783 1,028	1,785 1,612 1,771 1,593 1,528 1,299 1,167 976 814	2,620 2,328 1,985 1,336 1,256 1,077 1,100 1,073 750	37 35 37 33 37 55 27 21 13	25 20 23 21 23 16 16 18 15
January February March	196 218 264	144 121 200	803 893 1,190	642 830 1,610	678 822 1,139	568 677 1,172	8 17 15	6 9 14
Total	3,158	3,082	20,484	25,227	15,184	15,964	325	206

N. O. COTE, Chief of Branch.

K.—Statement showing number of Homestead Entries granted in the Provinces of Manitoba, Saskatchewan, Alberta and British Columbia for Fiscal Year 1911-12, as compared with Fiscal Year 1910-11.

MANITOBA.

			IIODA.					
Agencies.	1911-12.	1910-11.	In- crease.	De- crease.	Total, 1911-12.	Total, 1910-11.	In- crease 1911-12.	Dė- crease 1910-11.
Winnipeg Dauphin. Brandon	2,095 1,012 51	1,994 1,012	101	25				
	3,158	3,082	101	. 25	3,158	3,082	76	
	\$	SASKAT	CHEWA	AN.			,	
Yorkton Estevan Regina. Humboldt. Prince Albert Moosejaw Medicine Hat Battleford Swift Current. Saskatoon	1,265 937 341 1,721 2,096 4,083 1,137 2,484 3,453 2,967	1,315 1,033 435 1,758 1,871 -5,285 1,589 2,215 5,568 4,178 25,227	225	50 96 94 17 1,202 452 2,115 1,211 5,237	20,484	25,227		4,743
	1	ALI	BERTA.	,		I	1	1
Calgary. Lethbridge Red Deer Edmonton Grande Prairie Peace River Medicine Hat	3,837 567 1,731 6,398 492 452 1,707	5,450 933 2,032 5,112 291 2,146	1,286 492 161 439	1,613 366 301	17.104	15.00		700
	15,184	15,964	1,939	2,719	15,184	15,964		780
	B1	RITISH	COLUM	ВΙΛ.				
Kamloops New Westminster	287	202	85 34					
	325	206	119		325	206	119	
Grand total for fiscal year ended. Net decrease for fiscal year 1911-1	191 0-11				39,151	44,479	5,523	

N. O. COTE, Chief of Branch.

L .- STATEMENT showing the number of Homestead Entries made during the Fiscal Years ended March 31, 1911-12, and the Nationality of the Homesteaders as reported by the several agencies of the Department in Manitoba, Saskatchewan, Alberta and British Columbia.

${f Nationalities}.$	No. of Entries, 1911.	No. of Entries 1912.
Canadians from Ontario.	4,438	3,152
" Quebec	1,101	951
" Nova Scotia	237	182
" New Brunswick	140	118
Prince Edward Island	68	69
Manitoba	1.495	998
" Saskatchewan	4,061	3,085 863
Alberta	980	123
Persons who had previous entry	1,834	2,132
Newfoundlanders	7	6
Canadians returned from the U.S.A	553	401
Americans	12,485	10,577
English	6,161	5,739
Scotch	1,291	1,041
Irish	492	476
French	376	437
Belgians	133	159
Swiss	74 68	80 45
Italians	175	141
Syrians.	64	56
Germans	845	790
Austro-Hungarians	2,804	3,121
Hollanders	201	153
Danes (other than Icelanders)	206	201
Icelanders	96	69
Swedes	937	964
Norwegians	1,092	1,160
Russians Mennonites	1,858	1,781
Jamaicans	0	1
Brazilians		1
Chinese	5	8
Japanese	3	6
Persians	9	3
Australians	10	13
New Zealanders	6	12
Greeks	13	3
Hindoos	4	11 5
BulgariansServians	3	1
Turks	7	9
Algerians.	i	
Spaniards	2	
Chilians	1	3
Mexicans	1	
Egyptians		1
Madagascans		1
Totala	1-1-470	20.151
Totals	44,479	. 39,151

Representing 107,884 souls in 1911.

N. O. COTE, Chief of Branch.

M.—Statement showing the number of Homestead Entries made during the Fiscal Years ended March 31, 1911-12, by persons coming from the various States and Territories of the American Union.

States.	No. of entries, 1911.	No. of entries 1912.
rizona	6 11	
laska	1	
rkansas	21	1
arolina, North	83 29	7
wolina, South	12	
plorado	16	-
dumbia, District of	25	1
akota, North	4,339	3,98
akota, South	782	61
dawareorida	1 1	
orgia	6	
aho	228	13
inois	409 219	10 2-
dian Territory		
wa,	598	47
nsasntucky	200 50	13
uisiana	4	
aine	51	2
arylandassachusetts	5 93	(
assachusetts	650	40
nnesota	2,213	1,79
ssissippissouri	10 147	11
ontana	246	20
braska	200	20
wada	$\frac{3}{29}$	2
w Hampshirew Jersey	16	1
w Mexico	1	
w York	$ \begin{array}{c c} 205 \\ 183 \end{array} $	$\frac{17}{16}$
ioahon;a,	99	10
egon	157	10
nnsylvania	$\begin{array}{c c} 126 \\ 19 \end{array}$	$\frac{13}{1}$
ode Island	34	2
XAS	32	ā
ah	$\begin{array}{c c} & 19 \\ & 24 \end{array}$	1
rmontrginia	14	2 3
rginia, West	12	
ashington	683	45
sconsin	678 30	59 1
John Market Committee Comm		

N. O. COTE, Chief of Branch.

N.—Statement showing the number of Homestead Entries made during the Fiscal Year 1911-12, the Nationality of the Homesteaders and the Provinces in which the entries were made.

	Provinces.										
Nationalities.	Manitoba.	Saskatche- wan.	Alberta.	British Columbia.	Total.						
anadians from Ontario " Quebec " Nova Scotia " New Brunswick " Prince Edward Island " Manitoba " Saskatchewan " Alberta " British Columbia ersons who had previous entry ewfoundlanders anadians returned from the United States mericans nglish cotch rish rench elgians wiss alians oumanians yrians ernans ustro-Hungarians follanders anes elanders wedes orwegians ussians razilians hinese apanese ersians ustralians ew Zealanders indoos. indgarians ew Zealanders indoos. indgarians reeks urks ervians hilians amaican ladagascan gyptian	332 79 32 68 12 16 6 822 35 15 44 74 47 42 20 245	1,442 335 52 27 23 599 2,903 61 37 729 1 248 5,690 3,360 3,360 145 232 107 29 19 426 1,272 35 90 1,016 1 1 3 4 1 5 7 4 4 3 3 3 3 3 1 1 1	1,512 556 116 85 39 183 173 798 61 986 5 131 4,600 1,950 543 295 133 88 34 15 13 6 308 4,82 96 411 434 518 51 2 2 7 7 2 1 4 1	25 5 6 5 2 2 2 1 25 24 73 97 16 4 4 2 1 5 	3,15 95 18 11 6 99 3,08 86 12 2,13 40 10,57 5,73 1,04 47 48 4 14 15 20 96 1,11 1,78						
Total	3,158	20,484	15,184	325	39,1						
Tumber of souls represented by above entries					91,3'						

N. O. COTE, Chief of Branch.

O.—STATEMENT showing the number of Homestead Entries made in the Provinces of Manitoba, Saskatchewan, Alberta and British Columbia during the Fiscal Year 1911-12, by persons coming from the United States of America.

	Provinces.									
States.	Man.	Sask.	Alta.	В. С.	Total.					
rizona			1							
labama										
laskarkansas		$\begin{bmatrix} 2 \\ 3 \end{bmatrix}$.	10		1					
alifornia	i	12	16 56	3	7					
arolina, North			10		i					
arolina, South		10	3							
oloradoolumbia, District of	1	16	$\frac{27}{2}$	3	4					
onnecticut		3	10		1					
akota, North	121	2,791	1,073	2	3,98					
akota, Southelaware.	8	365	241	1	61					
orida			4							
eorgia		3	6							
aho	3	35 145	102 15	1 1	13					
linoisdiana	3	55	186	6 1	2.					
dian Territory			88							
wa	3	208	257	2	4					
ansasentucky		37	101 34	$\frac{1}{2}$	13					
ouisiana		1 1	3	4						
aine	1	13	4	2	:					
aryland			6							
assachusettsichigan	$\frac{1}{9}$	$\frac{56}{201}$	$\frac{34}{248}$	4	4					
innesota	63	1,140	584	12	1,7					
lississippi		2	4							
issouri	7	34	75	3	1					
ontana	2	70 64	137 136	2 2	$\frac{2}{2}$					
evada		3	130		2					
ew Hampshire		9	13		:					
ew Jersey		6 5	$\frac{11}{2}$							
ew Mexicoew York	2	62	109	5	1					
nio		61	102	6	i					
dahoma		21	76							
regonennsylvania		20 34	81 98	4 2	10					
hode Island.	ī	12	6	2	1					
nnessee	1	6	18							
exas		10	42							
tahermont		1 10	12 13							
irginia		16	20	1						
irginia, West			6							
ashington	1 4	86	360	5	48					
isconsinyoming	4	304	288 14	$\begin{vmatrix} 3 \\ 1 \end{vmatrix}$	5					
Total	234	5,935	4,735	74	10,97					

N. O. COTE,

Chief of Branch.

P .- STATEMENT showing the number of Homestead Entries reported in each year since 1874.

Departmental y	ear en	ded:—
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partment	ar year ended:—	NT C	TT., 4!
October	21 1074		Entries.
October	-,		1,376
66	31, 1875		499
6	31, 1876		347
"	31, 1877		845
"	31, 1878		1,788
66	31, 1879		4,068
"	31, 1880		2,074
"	31, 1881		2,753
"	31, 1882		7,483
	31, 1883		6,063
"	31, 1884		3,753
66	31, 1885		1,858
66	31, 1886		2,657
"	31, 1887		2,036
66	31, 1888		2,655
"	31, 1889		4,416
66	31, 1890		2,955
66	31, 1891		3,523
"	31, 1892		4,840
"	31, 1893		4,067
"	31, 1894		3,209
Decemb	er 31, 1895		2,394
"	31, 1896		1,857
"	31, 1897		2,384
66	31, 1898		4,848
"	31, 1899		6,689
June 8	30, 1900		7,426
	80, 1901		8,167
	0, 1902		14,673
	30, 1903		31,383
	30, 1904		26,073
	30, 1905		30,819
	30, 1906		41,869
	onths ended March 31, 1907		21.647
	ded March 31, 1908		30,424
rear en	" 31. 1909		39,081
66	" 31, 1910		41,568
66	" 31, 1911		44,479
66	" 31, 1912		39,151
	01, 1012		00,101

N. O. COTE,

Chief of Branch.

Q.—Statement showing the number of Pre-emptions, Purchased Homesteads and South African Volunteer Homesteads granted in each Land Agency during the Fiscal Year, 1911-12.

Agency.	Pre-emptions.	Purchased Homesteads.	South African Volunteer Homesteads.
Battleford Brandon Calgary Dauphin Edmonton Estevan. Grande Prairie Humboldt. Kamloops Lethbridge. Medicine Hat Moosejaw New Westminster Peace River Prince Albert. Regina Red Deer Saskatoon Swift Current. Winnipeg. Yorkton	2,143 20 506 1,600* 2,229 3 13 352 879 1,832	23 121† 199 5 11 112 425 183	156 242 3 180 17 157 79 11 217‡ 160 138 68 5 51 113 156 3 27
Total	10,211	1,408	1,783

^{* 793} Sask., 1,007 Alta. † 58 Sask., 63 Alta. ‡ Sask., 100 Alta.

Provinces.	Pre-emptions.	Purchased Homesteads.	South African Volunteer Homesteads.
Manitoba Saskatchewan Alberta. British Columbia.	6,529 3,682	1,043 365	6 920 857
Total	10,211	1,408	1,783

N. O. COTE,

Chief of Branch.

R.—Statement showing the number of Homesteads, Pre-emptions, Purchased Homesteads and South African Volunteer Homesteads granted during each month from April 1, 1911, to March 31, 1912.

Month.	Homesteads.	Pre-emptions.	Purchased Homesteads,	South African Volunteer Homesteads,
1911.				r
April. May. June. July August September October. November December.	4,610 4,308 4,680 4,361 4,054 3,247 2,909 2,650 2,099	1,136 1,056 1,283 1,255 1,213 878 845 701 490	134 142 181 168 164 122 107 91 99	160 179 245 219 196 194 187 196 207
January February March	1,685 1,940 2,698	399 428 527	64 64 72	
Total	39,151	10,211	1,408	1,783

N. O. COTE, Chief of Branch.

DEPARTMENT OF THE INTERIOR,

LAND PATENTS BRANCH,

OTTAWA, June 27, 1912.

S.—Statement showing South African Volunteer Bounty Land Certificates of 320 acres each, issued under the Volunteer Bounty Act, 1908, by the Department of the Interior during the Fiscal Year ended March 31, 1912.

												No.	Acres.
Certificates	issued											135	43,200
Certificates													570,560

N. O. COTE,

Chief of Branch.

T.—Statement of Entries affecting Dominion Lands which were made at Head Office during the year ended March 31, 1912.

	No. of Grants.	Acres.
Special Grants. Calgary and Edmonton Railway Co. Canadian Northern Railway Co. Canadian Pacific Railway Co. (Main line). Qu'Appelle, Long Lake and Saskatchewan Railroad and Steamboat Co. Area granted to the Grand Trunk Pacific Railway Company for right of way. Railway right-of-way. Hudson's Bay Company's grants	124	9,784 00 23,305 00 3,075 50 6,123 38 14,176 56 1,579 09 1,691 85 248,819 00

N. O. COTE,

Chief of Branch.

DEPARTMENT OF THE INTERIOR,

LAND PATENTS BRANCH,

OTTAWA, June 27, 1912.

U.—Comparative Statement of the Homestead Entries and Sales made during the Fiscal Years ending March 31, 1911, and March 31, 1912, respectively.

	Fiscal Ye March,	ar ending 31, 1911.	Fiscal Year ending March 31, 1912.		
	No. of entries.	Acres.	No. of entries.	Acres.	
Homesteads. Sales	44,479	7,166,640 443,673	39,151 1,070	6,264,160 52,517	

N. O. COTE,

Chief of Branch.

V.—STATEMENT	showing	the	numb	er of	Assig	nments	record	ed	in	the	Land	Patents
	Branch d	urin	g the	Fiscal	Year	ended	March	31,	19	12.		

Number of deeds registered	 373
Fees received in connection	

N. O. COTE, Chief of Branch.

W.—Statement of Land Entries Cancelled during the year ended March 31, 1912.

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			Grand Totals,	125664 1277 1277 1277 1277 1277 1277 1277 127
			Total.	:0.88 - 1.00 - 1
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British Columbia	. s.	rse of	Default.	
	Home- steads.	Ca	Abandonment.	32000 1
		· · · · · ·	Total.	28.24.8 51.35.15.15.15.15.15.15.15.15.15.15.15.15.15
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	Sa		Abandonment.	: - : : 31 : : : : : : : : : : : : : : : :
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Alberta.	Pre- emptions.	f Can	Default.	38.82.51
	em	Cause of Cancellation.	Abandonment.	144.75 2000 2000 2000 2000 2000 2000 2000 20
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hewa	Purchased Homesteads	Cause of Cancellation.	Default.	S. S. S. S. S. S. S. S. S. S. S. S. S. S
Saskatchewan			Abandonment.	
Sas	Pre- emptions.	Ö	Error, &c.	-25-44
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	in di		Abandonment.	244 2104 43913 5539 2413 2120 1 1 1 2 1 2 2 2 2 2 2 2 2 2 2 2 2
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Manitoba.	Pre-	Cause of Cancellation.	Abandonment.	:77 : : : : : : : : : : : : : : : : : :
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X.—Statement showing the number of acres of swamp lands in Manitoba transferred by Orders in Council to the Province of Manitoba to March 31, 1912.

Total area transferred to March 31, 1911. 2,009,368-06 Order in Council dated October 5, 1911. 3,048-20

N. O. COTE, Chief of Branch.

DEPARTMENT OF THE INTERIOR,

LAND PATENTS BRANCH,

OTTAWA, June 27, 1912.

Y.—Unclaimed Land Warrants issued to Members of the Red River Expeditions of 1870, 1871, 1872 and 1873, and to members of the Northwest Mounted Police.

These warrants entitle the grantee or his assignee to a free grant, without actual residence or settlement duties, of a quarter-section of Dominion lands, containing 160 acres of the class open to homestead entry in the Provinces of Manitoba, Saskatchewan or Alberta.

FIRST OR ONTARIO BATTALION OF RIFLES.

Name of Warrantee.	Rank.	Remarks.
0067 Frederick Amandres 0103 George Henry Brown Lee. 0151 John Walker Babcock 0170 François Bonneille 0252 Albert Carney 0263 John Davidson. 0310 G. Eastman 0320 Charles Forman 0433 Wellington Hawley 0497 William H. Low 0549 William Massey 0577 R. J. Moore. 0593 Alfred Morgan 0674 C. Nilson 0755 Daniel Rutherford 0756 William Ray 0758 Alexander Rogers 0758 Wellington F. Walker	Qr. Master Sergt. Private. Colour Sergt. Private.	•

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Unclaimed Land Warrants. etc.—Continued.

SECOND OR QUEBEC BATTALION OF RIFLES.

===			
No. of Warrant.			
=			
T 5	Name of Warrantee.	Rank.	Remarks.
o > ~	Traine of Wallancee.	Rank.	nemarks.
7			
0063	James Atkinson	Private.	,
0107	John Brown		
	John Belair	**	
0124	John Butterworth	11	1
01.19	Philippe Bergeron.		
0144	Famile Disis		
	Emile Blais	"	
	Charles Brunet		
	Lionel Barre		
	Xavier Barril		
	Joseph Cayen		
	Palery Cousineau		
0236	Jean Caron	11	
0249	Albert Chandler	13	
0274	Samuel Davis	11	
0284	Napoléon Desroses	Corporal.	
	Thomas Donavan		
0299	Michael Donnelly	16	
0312	William Ellis	Private	
	Jacques Flamand		
	Edward Finnerty		
	Henry Fieldhouse		
	Robert Gilroy		
	Richard Gibson		
	Alexis Gamache.		Assigned to Nicol Milloy of Toronto.
0380	William Gilvey	0	
-0412	George Harflett	11	
	John Harrison	tt.	
0427	John Hogan	11	
0428	Joseph Houle	11	,
0436	Joseph Hiroux	1	
	Andrews Henry	11	
0484	Joseph Kelly	11	
	Joachim Lafranchise		
	Thomas Lee		
	Thomas Labbé (No. 201).		
	Napoléon Larose		
	Frédéric Longmuir		
	Pierre Moisan		
	Samuel Maddaford	H	
	Isidore Michaud	11	
0589	William Murray	11	
0597	Napoléon Melançon	H	
0625	Angus McDiarmid	11	
	Thomas McNicol	11	
0657	Frederick McIver	11	
	Timothy O'Bryan	11	
0679	Hugh O'Logidan	**	
0680	Michael Ouellette	1 10	
	Alexander Berault		
	Reuben Paul	11	
	Henry Potter		
0722	Alphonse Quintal	1	
	Tom. Hodgson Rule		
	George Robinson	11	
	Charles Rondeau	. "	
	Arthur Roy	17	
0766	Louis Ross		
0210	John Seddon	11	
		11	
	Alfonse St. Onge		
	Pierre St. Armand	11	
	William Snider		
0830	Moïse St. Pierre	~ II	
0834	Smith (No. 398)	Corporal.	
11999	Charles I. Stuart	Frivate.	
0840	W. Sinclair	Corporal.	
	ar : 191		
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Unclaimed Land Warrants, etc.—Concluded.

SECOND OR QUEBEC BATTALION OF RIFLES .- Concluded.

No. of Warrant.	Name of Warrantee.	Rank.	Re	emarks.
0852 0×53 0866 0870 0871	Didier Tremblay Baron Taylor James Trevor George Taylor J. McTerreridge Francis Vaillancourt Ignace Vallère	11 11 11		
0909 0924 0929	George Henry Welland. John Wyatt. James Ward	n n n		
		EXPEDITION OF 1	871.	
1026 1044 1076	William Chisholm James Bond Chs, L. M. G. Chasse William Kellock. Robert William Turner. Frederick Vogt. William R. Johnston Francis R. Whittaker	Private. Sergeant. Private.	Assig. to Albert N.	McMicken of Winnipeg """" "" Carpenter of Winnipeg V. Davey, of Kincardine
		EXPEDITION OF 1	872.	
	James McDonell William Smith	Private.		
		EXPEDITION OF 1	873.	
1354 1363 1370 1372 1381	Paul Adams. William Brown Francis Phair Richard Bodwick Jean Boire John Harrigan William Sturney George Telford Joshua Walker	# # # # # # # # # # # # # # # # # # #		
	NOI	RTHWEST MOUNTEL	POLICE.	•
0029 0035 0037 0088 0265 0074	Simon Taylor Wm. L. Spotten Robert Heywood Ernest George Richard Goldsworthey William Johnsen Augustus Schrodder. James Battersby		11 11 Q1 H	ronto. rillia, Ont. uebec. alifax. sgoode, Ont. uebec. acleod, Alta.
			N. O. CC	OTE,

Chief of Branch.

No. 30.

REPORT OF THE ORDNANCE AND ADMIRALTY LANDS BRANCH.

DEPARTMENT OF THE INTERIOR. OTTAWA, June 29, 1912.

W. W. CORY, Esq., C.M.G., Deputy Minister of the Interior, Ottawa.

SIR,-I have the honour to submit the following report, relative to the work carried on in connection with this branch of the department during the fiscal year ending March 31, 1912.

Within the period covered by this report there were no public sales of ordnance lands held, but, with respect to lands formerly sold or occupied under lease with the option of purchasing such leasehold property upon payment in cash of the amount of the purchase price, 26 full lots and 12 part lots situated in the several localities hereunder named and in the subjoined statement marked 'A.' have been fully redeemed and letters patent issued therefor.

- 1. Edmundston, N.B.—One lot forming part of the Ordnance reserve in this locality and disposed of at a sale by public auction held in 1890, for the sum of \$160, was paid for in full and letters patent issued, the balance of the purchase money, \$34.80, having been received within the fiscal year.
- 2. Grand Falls, N.B.—Six town lots and ten farm lots, located within the boundaries of this reserve and which were sold by public auction on sundry dates for the sum of \$1,079.25, have been fully paid for and patents issued. The balance of purchase money received during the fiscal year was \$632.44.
- 3. Isle de Grace.—The ordnance reserve at this point which covers the northeasterly and southeasterly portions of the island was leased to Mr. Duquesclin Magnan, of Sorel, for a period of ten years, under the authority of an order in council.
- 4. Nepean.—A parcel of land situated in lot letter 'I.,' concession 'C.,' of this township, originally acquired for the purposes of the Rideau Canal, was conveyed by letters patent to the successors in title of the late John Mutchmore, the consideration money having been previously paid.

Before the issue of the patent, however, the legal representatives of the late John Mutchmore filed a petition of right claiming a reconveyance from the Crown of all that portion of lot 'I.,' situated at the southwesterly angle of the said lot lying outside a reserve of one chain back from the water's edge of the canal. The Crown granted the prayer of the petitioners and the case was argued in the Exchequer Court, with the result that judgment was rendered in favour of the Crown.

- 5. Niagara-on-the-Lake.—One lot being part of the subdivision of the property known as the 'Hospital Lots,' situated in this town and which was previously sold for the sum of \$268, was paid for in full and letters patent issued. The balance of purchase money received within the year was \$214.40.
- 6. Ottawa.—Four whole lots and nine part lots situated in this locality and held under the provisions contained in the original leases granted by the Imperial authori-

ties, one of such provisions being that the leasehold may be converted into a free-hold upon payment, in cash, of the purchase price fixed on these lots, were paid for in full and letters patent issued. The total amount of consideration money received during the past year was \$1,440.66.

- 7. Owen Sound.—A portion of the southerly ordnance reserve situated within the limits of this town was transferred, by the authority of an order in council, to the Department of the Naval Service.
- 8. Point Pelec.—At the time the reserve in this locality was handed over by the Imperial authorities to the Government of Canada, it was found that various portions of the property were occupied by squatters, and these were permitted to acquire titles to their holdings upon furnishing satisfactory proof and paying for the land at the rate of \$1 per acre, plus a proportionate part of the cost of survey. Two of these squatters having proved title to their respective holdings and paid the purchase price, were granted letters patent. The amount of consideration money received was \$53.45.
- 9. St. John, N.B.—A small parcel of land forming part of Fort Howe Military Reserve, which was previously occupied with the assent of the Crown, was transferred from class one to class two of Ordnance and Admiralty Lands for the purpose of being sold and patented to the occupant. The amount received for this parcel of land was \$350 cash.
- 10. Toronto.—Two lots forming part of the ordnance property known as 'Victoria Square' in this city, which were disposed of in 1871 at a sale by public auction, were patented; the purchase price therefor having been paid in full. Owing to the fact that satisfactory proof of title was not furnished until quite recently, the issue of letters patent was held pending the filing of such proof.
- 11. Turkey Point.—A portion of the Ordnance Reserve at this point, which is largely composed of marsh land, has been occupied by Mr. James L. Duncan and his predecessor in title for upwards of fifty years. The parcel of land so occupied contains 79.75 acres more or less, and this was sold and patented to the occupant, under the authority of an order in council, and in accordance with the provisions of the Ordnance and Admiralty Lands Act. The sum of \$79.75, being the purchase price, was paid in cash.

The following statements are subjoined:-

- A. Statement showing the number of lots and part lots sold or redeemed, the amounts for which such lots were originally sold and the sums received within the fiscal year as consideration or balance of purchase money.
- B. Statement giving the names of the several localities where ordnance lands are situated and the amounts received on account of such land during the fiscal year. The net revenue received was \$11,486.55, an increase of \$5,528.29 over that of last year.
- C. Statement showing the receipts for each month classified as fees, rent or interest and principal.
- D. Statement showing the sums due and unpaid at the close of the fiscal year as instalments of purchase money and rent or interest. The total amount shown to be outstanding is \$59,235.79, a decrease of \$874.39 from that of last year.

The correspondence in connection with this branch averages about the same as in former years while the office work generally shows a marked increase. The number of letters received, recorded and filed was 477; number of letters written, copied, indexed and mailed 408. In addition there were 145 accounts prepared and rendered;

132 receipts issued and 79 reports on various subjects pertaining to ordnance and admiralty lands prepared and submitted. There were 54 assignments received, examined and registered, an increase of 41; 32 draft letters-patent prepared, an increase of 18 over the previous fiscal year.

The accounts with purchasers and tenants of ordnance lands now open in the books of this branch number 171, these have been carefully and regularly posted; the receipt book, cash book and monthly statement book have been diligently kept and a monthly return of all moneys received regularly forwarded to the Accounts Branch.

I beg to supplement the foregoing report on the work pertaining to ordnance and admiralty lands by a synopsis of the work carried on in connection with the copying, comparing, recording, indexing, printing and filing copies of all the orders in council passed from time to time, relative to the administration of this large and rapidly expanding department. The number of orders in council passed during the year was 773, an increase of 125 over last year. The extent and importance of the work performed in connection with these valuable records, in order that copies thereof may be constantly available, cannot be over-estimated.

All orders in council, as received, are copied, compared and recorded in a register kept expressly for that purpose. Requisitions on the superintendent of printing are issued for printed copies of all orders in council, the proof is carefully read and corrected and when the printed copies are received these are checked, numbered and filed for future requirements.

During the year there were 442 requisitions issued, 382 orders in council were published in the Canada Gazette and of these 40 were likewise published in the British Columbia Gazette.

Owing to the insufficiency of the staff and the increase in the work of this branch, such increase being largely due to the amount of detail necessary in keeping the record of attendance for the whole staff of this department, the increased number of orders in council and the many searches made for titles and other information, for which there is nothing tangible to show, I am unable to report any material progress in the way of additional bound volumes of orders in council. However, with the help of additional clerical assistance, for which I have already applied, I hope to soon resume that work and carry it on to a satisfactory conclusion.

The volume and importance of the work performed in this branch in connection with the keeping of the record of attendance of the officials in the various branches of this department, may be easily estimated when attention is called to the fact that this record embraces absences for any and all causes and forms the basis of the monthly pay lists, as well as of the quarterly report prepared and furnished in accordance with the provisions of the Civil Service Amendment Act, 1908.

I have the honour to be, sir,

Your obedient servant.

JOS. P. DUNNE.

Clerk in Charge of Ordnance and Admiralty Lands.

A.—Statement giving the number of Lots and Part Lots sold or redeemed, the amount for which such lots were originally disposed of and the sums received as instalment or balance of purchase moneys during the Fiscal Year ending March 31, 1912.

Locality	Number of lots sold or redeemed.	Amt. of consideration or purchase money.	Amt. rec'd on a/c during fiscal year.	Remarks.
		\$ cts.	\$ cts.	
Charlotteville	pt. Lot	79 75	79 75	Consideration in
Edmundston	1 Lot	160 00	38 40	full. Bal. purchase money.
Gloucester	4 Town Lots.	366 00 Con	firmatory. 272 80	Bal. purchase
	10 Farm Lots. 2 Mill Res	553 25 160 00	319 64 46 00	money. do do
Nepean	pt. Lot	1,079 25 20 00	632 44	Previously paid.
Niagara	1 Lot	268 00	214 40	Bal. purchase
Ottawa	4 Whole Lots 8 Half Lots 1 pt. Lot	$\begin{array}{c} 654 \ 16 \\ 786 \ 50 \\ 74 \ 16 \end{array}$	654 16 786 50	money. Consideration in full. Previously paid.
Point Pelee	2 Lots	1,514 82 53 45	1,440 66 53 45	Consideration in
St. Johns.	pt. Res	350 0 0	350 00	full. Consideration in
Toronto	2 Lots	658 66		full. Previously paid.
		4,183 93	2,809 10	

JOS. P. DUNNE,

Clerk in Charge of Ordnance and Admiralty Lands.

Locality-

B.—Statement naming the various localities where Ordnance Lands are situated on account of which moneys have been received during the fiscal year ending March 31, 1912.

carry—		
Amherstburg	\$ 2	00
Burlington	100	00
Chambly	261	75
Charlotteville	79	75
Edmunston	81	00
Elmsley	13	70
Fort Cumberland	75	00
Fort Erie	1	00
Grand Falls	1,052	50
Grenville	2	40
Kingston	352	50
Niagara	393	69
Oromocto		25
Ottawa	2,525	24
Owen Sound	79	
Oxford	12	
Point Pelee	117	
Port Maitland	_	00
Prescott		00
Quebec	830	
Queenston	_	00
St. Johns	350	
St. Joseph's Isle	34	
Sarnia	200	
Shelburne		00
Sorel	39	
South Crosby	_	00
Toronto	4,804	74
	11,421	46
Fees	145	00
	11,566	46
Refunds	79	
1001 011 03		
Total	11,486	53

JOS. P. DUNNE,

Clerk in charge of Ordnance and Admiralty Lands.

C.—Statement showing receipts each month of the year classified as Fees, Rent or Interest equivalent to Rent and Principal.

Month.	Fees.	Rent or interest.	Principal.	Total.
	\$ ets.	\$ cts.	8 cts.	\$ cts.
pril	4 00	1,681 65 412 71	3 30 301 80	1,688 95 714 51
layune	22 00	1,102 85	521 36	1,646 21
uly	28 00	286 14	316 78	630 92
ugust	24 00	103 48	565 10	692 64
eptember		51 60	3,438 35 575 49	3,48995 77971
ctober	8.00	204 22 328 65	563 57	900 22
Vovember	5 00	59 09	135 82	199 91
anuary	36 00	329 15		365 15
ebruary	8 00	240 29 25	199 75	448 04 10 25
farch	10 00	25		10 20
	145 00	4,800 08	6,621 38	11,566 46
Refunds—			" " " " " " " " " " " " " " " " " " " "	
August				
November				
March			0.00	79 93
Total				11,486 53

JOS. P. DUNNE,

Clerk in Charge of Ordnance and Admiralty Lands.

D.—Statement showing amounts due and unpaid on account of Purchase Money and Rent or Interest for the Fiscal Year ending March 31, 1912.

Locality.	Rent or Interest.	Principal.	Total.
	\$ ets.	\$ ets.	\$ ets.
Beaver Harbour Burlington Carillon Chambly Dalhousie Fort Cumberland Fort Erie Grand Falls Kingston Marlborough Nepean Niagara Ottawa Owen Sound Oxford Presqu'Isle St. Croix Sorel	14 00 180 00 5 80 273 60 15 18 153 00 1 00 278 97 1 00 4 00 62 00 50 70 2,465 10 37 50 5 60 1 00 5 60 1 460 28	152 00 23 00 650 47	14 00 180 00 5 80 425 60 38 18 153 00 1 00 929 44 1 00 62 00 388 70 2,465 10 37 50 5 60 1 00 5 00 1,460 28
Tay Toronto Turkey Point. Wolford.	12 00 820 52 18 67 207 40	52,000 00	12 00 52,820 52 18 67 207 40
	6,072 32	53,163 47	59,235 79

JOS. P. DUNNE,

Clerk in Charge of Ordnance and Admiralty Lands.

No. 31.

REPORT OF THE CORRESPONDENCE REGISTRATION BRANCH.

DEPARTMENT OF THE INTERIOR,

CORRESPONDENCE REGISTRATION BRANCH,

OTTAWA, April 18, 1912.

W. W. CORY, Esq., C.M.G., Deputy Minister of the Interior, Ottawa.

SIR,—I have the honour to place before you a report of the work of the registration branch of the department for the fiscal year which ended with March 31 last.

Statement 'A.' shows the number of letters recorded and the amount of money received and sent to the accountant during the year.

Statement 'B.' shows the growth of the work year by year for the past thirteen years.

Letters or parcels enclosing cash, cheques, money orders, &c., reached a total of 14.389.

There were 2,498 telegrams received and registered. Letters written in foreign languages, translated into English, numbered 2,068.

There were 1,052,896 fyles distributed to the several branches and at present there are 9,500 fyles being acted on or awaiting action throughout the department.

There were 363,225 letters received and dealt with and 272,419 were numbered and recorded.

Each succeeding year sees the departmental offices become more scattered about the city, necessitating great loss of time and consequent delay in the handling of correspondence. To do the work expeditiously it was necessary to secure extra assistance and the following clerks were engaged for varying periods: G. Ferguson, W. B. Megloughlin, L. H. Moore, E. J. Foley, J. E. Spero, R. M. Cairns, P. Moyer, J. F. Maunder, Bruno Grandmount, E. Cyr, R. T. Young, A. E. Cuzner, B. M. Frith, D. Gordon, H. Desjardin, J. B. Corcoran, Harry McKercher, J. C. O'Neil, R. de Puyjalon, Eugene Frechette, Oscar Cousineau, G. A. McHugh, M. Bissonette, H. Giroux, Miss E. Lynch and Miss H. Courtney.

J. M. ROBERTS,

Chief of Branch.

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A.—Statement showing the number of Letters recorded and the Money received during the Fiscal Year ended March 31, 1912.

. 1911.	Letters	Dail y	Registered	Letters	Money
	Recorded.	Average.	Received.	Sent.	Received.
April May. June July August September. October November December	20, 135 26,065 25,160 31.213 23,427 22,324 22.570 22.022 20,246	875 1,042 1,048 1,249 901 896 903 881 810	1,696 1,728 1,657 1,761 1,720 1,621 1,872 1,787 1,761	2,538 1,917 2,008 2,083 2,191 2,117 2,139 2,303 2,283	\$ cts. 116,891 47 380,907 68 337,008 02 181,001 71 90,565 99 134,515 08 210,845 35 238,074 26 198,560 74
January	20.835	833	1,978	2.641	149,226 48
February	19,180	800	1,871	2,370	168,112 88
March	19,242	740	1,857	2,612	171,393 00
Total	272,419		21,309	27,202	2,377,102 66

J. M. ROBERTS,

Chief of Branch.

DEPARTMENT OF THE INTERIOR,

CORRESPONDENCE REGISTRATION BRANCH,

OTTAWA, April 18, 1912.

B.—Statement showing the number of Letters recorded and Money received during each Fiscal Year from 1900 to March 31, 1912.

Fiscal Year.	Letters Recorded.	Money Received.
		\$ cts
1900	48,663	200,831 71
1901	67,860	333.534 02
1902	67,722	382,999_87
1903	87,851	629,585 47
1904	113,074	630,355 44
1905	135,908	528.219 76
1906	176,729	875,933 54 1,337,780 94
1907 (uine n.onths). 1908	150,462 187,684	1,558.230 32
1909	260,142	1,798,276 17
1910	264,209	2,381,605 39
1911	279,186	2,220,117 97
1912	272,419	2,377,102 66

J. M. ROBERTS,

Chief of Branch.

DEPARTMENT OF THE INTERIOR,

CORRESPONDENCE REGISTRATION BRANCH,

OTTAWA, April 18, 1912.

No. 32.

REPORT OF THE CORRESPONDENCE COMPARING AND MAILING BRANCH.

W. W. Cory, Esq., C.M.G., Deputy Minister of the Interior, Ottawa.

SIR,—I have the honour to submit to you, herewith, a statement showing the work done in the Correspondence Comparing and Mailing office of the Department of the Interior during the fiscal year ended March 31, 1912.

I have the honour to be, sir,

Your obedient servant,

CHAS. C. PELLETIER,

Clerk in Charge.

STATEMENT of the work done in the Correspondence Comparing and Mailing Branch during the Fiscal Year ended March 31, 1912.

From April 1, 1911, to March 31, 1912.	Letters sent.	Registered letters sent.	Telegrams sent.	Totals.
1911.	The state of the s			
April May June July August September October November December. 1912.	37,194 35,092 30,645 33,752	2,538 1,917 2,008 2,083 2,191 2,117 2,139 2,303 2,283	128 282 276 271 287 167 196 188 259	30,713 33,778 33,584 39,584 37,570 32,929 36,087 36,606 30,152
January	37,305 34,124 40,408	2,641 2,370 2,612	$ \begin{array}{r} 200 \\ 192 \\ 222 \end{array} $	40,146 36,686 43,242
Total for fiscal year ending March 31, 1912	401,171	27,202	2,668	431,041

The out-going letters were copied in 161 one-thousand paged letter-books, compared with 159 letter-books for the same period last year.

The number of pages of letter-books indexed was 161,129.

The daily average of letters sent out was 1,360.

The heaviest average was during the month of March, the daily average being 1,616. The lightest month was April with an average of 1,213.

There were 1,500 documents compared.

The grand total for this office during the fiscal year 1911-12 was 431,041, an increase of about 17,431 letters over last year.

CHAS. C. PELLETIER.

Clerk in Charge, Correspondence Comparing and Mailing Branch.

No. 33.

REPORT OF THE CHIEF GEOGRAPHER.

DEPARTMENT OF THE INTERIOR. OFFICE OF THE CHIEF GEOGRAPHER, OTTAWA, April 15, 1912.

W. W. CORY, Esq., C.M.G.,

Deputy Minister of the Interior,

Ottawa.

SIR,—I have the honour to report as follows on the work of my office for the fiscal year 1911-12.

The staff as constituted at the end of the period mentioned was as follows:—

E. D. Bryant, chief draughtsman: compilation of Cornwall and part of Yarmouth sheets, preparing tracing for photo-litho, Saskatchewan map.

W. Anderson: revising and bringing up to date the maps of the Prairie provinces. Jas. Beveridge: revising some of the Ontario Standard sheets, compilation of Yar-

mouth sheet and revision of Bank, Milling and Elevator maps.

H. Tache: compiling Sheet 12, Quebec, revising Sheet 13. New Brunswick, and completing map of New Brunswick.

F. Inkster: revising some of the Ontario Standard sheets, large Railway map of Canada, preparing tracing for photo-litho map of Manitoba.

A. M. Darrach: preparing Sheets 20 and 21, Alberta.

H. Blatchley: revising Ontario Standard sheets, preparing tracings for Saskatehewan map and miscellaneous draughting work.

Geo. Dumouchel: compilation of Sheet 7, Sault Ste. Marie.

- H. W. Wilson: revising sectional sheets and Land District maps of the Prairie Provinces.
- A. A. Linnell: revising Sheet 11, compilation of part of the work for Quebec sheets.
- S. Chandler: tracing railway plans and keeping record of all railway plans. With Mr. Wilson, spent some time in Quebec preparing work for use of this office.
- A. Groulx: completing railways on sectional sheets for office use, tracing plans, making reductions.

J. P. McElligott: tracing plans, making reductions, miseellaneous work.

- J. Pigeon: making reductions, preparing Sheet 32, Quebec, miscellaneous work.
- W. B. Cole: preparing part of tracing for photo-litho, Alberta and Saskatchewan map, compilation French River and Muskoka sheets.

C. Marchand: tracing plans, making reductions, miscellaneous office work.

J. Bennie, R. W. Craig, W. A. Blue: statistical work, preparing data for economic maps, general office work.

A. Akerlindh, J. S. Gagnon: in charge of distribution.

Mrs. D. E. Waine, Miss M. Stewart, stenographers.

F. H. Woggon, messenger.

Sheet 3 N.W., Kingston, and Sheet 7, Sault Ste. Marie, of the Standard Topographical sheets, have been issued during the year, and a map on the same scale showing the country around Cobalt, Gowganda and Porcupine was issued, to supply the demand for it. The Windsor, London, Hamilton, Ottawa and Prince Edward Island sheets have been revised and new editions issued.

New editions have been issued of the large and small railway maps, on a scale of 35 miles and 100 miles to 1 inch, respectively, land district maps of all Dominion land agencies, maps of Saskatchewan and Alberta have been issued as Province maps, replacing the former four sheet map.

During the year, 221,356 maps (sheets) and 10,426 letters have been sent and

9,661 letters received.

I have the honour to be, sir,

Your obedient servant.

J. E. CHALIFOUR,

Chief Geographer.

No. 34.

REPORT OF THE SURVEY RECORDS BRANCH.

DEPARTMENT OF THE INTERIOR,
SURVEY RECORDS BRANCH,
OTTAWA, April 15, 1912.

W. W. CORY. Esq., C.M.G.,
Deputy Minister of the Interior,
Ottawa.

SR,—I have the honour to submit the attached detailed statement, which shows this to have been an average year in the work of the branch.

There were an unusual number of changes in the staff during the year.

The congested condition of the office is again referred to, and we are now subjected to inconvenience in the conduct of the work, and this must soon entail great loss as well. File cases are now ordered for which we have no room, and other cases, needed at once, cannot be ordered as we have no space in which to put them.

All of which is respectfully submitted.

C. J. STEERS,

Clerk in Charge.

STATEMENT of work performed in the Survey Records Branch for the year ending March 31, 1912.

Files received and dealt with. Letters drafted. Plans, tracings, &c., compiled and copied. Original township plans copied. Plans copied for timber berths, &c. Statutory declarations copied. Plans sent agents, registrars, &c. Plans sent in answer to special requests. Pages of field notes copied. Prints of plans received and stored. Original plans received and recorded. Field notes received and recorded. Descriptions written for patents. Letters to agents, registrars, &c. Registered parcels mailed.	20,529 5,503 1,003 150 1,685 102 19,120 17,738 841 228,940 1,301 468 9 896 2,306
WORK PERFORMED FOR THE TOPOGRAPHICAL SURVEY BRANC	н.
Books searched for. Books sent. Books returned. Plans searched for. Plans sent. Plans returned. Volumes searched for.	6,914 5,246 5,170 2,665 2,144 1,239
Volumes returned	140 117
WORK PERFORMED FOR PATENTS BRANCH.	
Plans searched for. Plans sent. Plans returned. Books searched for. Books returned. Books returned.	692 690 785 119 118 84
WORK PERFORMED FOR OTHER BRANCHES.	
Plans searched for	489 489 308 224 222 190

No. 35.

REPORT OF THE WATER-POWER BRANCH.

DEPARTMENT OF THE INTERIOR,
WATER-POWER BRANCH,
OTTAWA, April 1, 1912.

W. W. Cory, Esq., C.M.G.,

Deputy Minister,

Department of the Interior,

Ottawa.

Sir,—I have the honour to submit the following as the first annual report of the Water-Power Branch, for the fiscal year ended March 31, 1912.

Water-power matters were for years dealt with by the Water-Power Division of the Railway Lands Branch, of which division the undersigned had charge. Under the general direction of the late Mr. R. E. Young, Superintendent of the Railway Lands Branch, the work of that division so increased in scope and importance that it was found necessary to have a separate and distinct branch organized, with a recognized superintendent giving it his entire time and attention. Accordingly a Water-Power Branch was created by Order in Council in December, 1911, shortly after Mr. Young's death, with the undersigned as superintendent. The work of the new Branch consists of the administration of water-powers on Dominion lands, water rights matters within the railway belt of British Columbia, foreshore matters and reclamation.

At the creation of the new branch its Head Office staff consisted of:-

J. B. Challies, Superintendent	Class	1-B
Engineer		1-B
B. E. Norrish, M.Sc., Engineer	"	2-A
R. S. Stronach, Engineer		2-B
A. M. Beale, B.Sc., Engineer	"	2-B
Draughtsman	"	2-B
Miss C. J. McIlmoyle, Clerk		3-A
Miss I. M. Grant, Stenographer		3-B
Miss G. Hewton, Stenographer	.Tempo	rary.
D. R. Walters, Messenger		

The two vacancies on the staff remained unfilled up to the end of the fiscal year. In February, 1912, the Branch moved into what were then commodious quarters in the Blackburn Building, but these are fast becoming inadequate and some provision will have to be made for housing such of the field staff as will be engaged at Head Office during the winter months preparing reports of their summer's work. It is hoped that added space will be obtainable before the winter of 1912 in the new Union Bank Building now in course of construction.

The growth in the regular routine work of the Branch, the extensive additions to the outside field staff, and all the work incident to the organization of a new branch, have seriously taxed the time and efforts of every member of my staff and I desire to give full tribute to their cheerful, hearty and loyal co-operation. Further clerical assistance is required, and the services of a capable and discerning clerk, of experience in the department, to take charge of filing and indexing, are argent. On account of the isolation of the Branch it has been found necessary and expedient to establish an indexing and filing system separate and distinct from that of the Registration Branch in the Langevin Block. On account of the many important engineering plans and technical reports of the Branch the indexing and filing system is particularly complicated.

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SESSIONAL PAPER No. 25

The field work of the Branch is superintended by a member of the outside staff, J. T. Johnston, B.A.Sc. Mr. Johnston is an honour graduate in civil engineering, of the School of Practical Science, of the University of Toronto, and is an Associate Member of the Canadian Society of Civil Engineers. His experience in river regulation and power development investigations has been extensive, and of peculiar value in connection with the work of this Branch. All power and storage investigations and construction work are carried on by competent hydrau ic and civil engineers, and when necessary (on account of special difficulties involved or the great importance of the work), the advice of prominent consulting engineers, of recognized standing, is secured.

FIELD STAFF.

The field staff of the Branch consists of:-Hydraulic Engineer, in charge of field work.—J. T. Johnston, B.A.Sc.

COQUITLAM DAM, B.C.

Consulting Engineer to the Department.—John R. Freeman, C.E. Resident Inspecting Engineer.—R. S. Stronach. Clerical Assistant.—A. T. Milner (from January 29, 1912).

HYDROGRAPHIC SURVEYS.

Railway Belt of British Columbia: Headquarters at Kamloops.

Chief Engineer—P. A. Carson, B.A., D.L.S.

Assistant Engineers.—W. M. Carlyle, B.A.Sc. (resigned Feb. 17, 1912).

C. G. Cline, B.A.Sc., D.L.S. C. E. Richardson, B.A.Sc.

K. H. Smith, B.A. (Sept. 13, 1911-Jan. 26, 1912).

C. R. Adams, of U.S. Hydrographic Survey (April 19-June 30, 1911).

Clerical Assistant.—A. T. Milner (June 5, 1911, to Jan. 29, 1912).

Province of Manitoba: Headquarters, 245 Chamber of Commerce Block, Winnipeg, Manitoba.

Chief Engineer.—D. L. McLean, B.Sc.

Assistant Engineers.—S. S. Scovil, B.Sc.

G. H. Burnham, B.A.Sc.

Clerical Assistant.—A. Perie.

WATER POWER AND STORAGE INVESTIGATIONS.

Winnipeg River System:

Consulting Engineer.—J. B. McRae, C.E., Ottawa.

Chief Engineer.—D. L. McLean, B.Sc.

Assistant Engineers.—E. B. Patterson.

Eyre M. Dann (June 10, 1911-Sept. 1, 1911).

A. M. Beale, B. Sc. (Aug. 8, 1911-June 1, 1912).

Junior Assistant.—Bruce Hogarth (June 10 to Oct. 3, 1911).

Draughtsman .- P. J. Barry.

Bow River System:

Consulting Engineer.—C. H. Mitchell, C.E., Toronto.

Chief Engineer.—M. C. Hendry, B.A.Sc.

Assistant Engineers.—C. H. Attwood (May 10 to Oct. 12, 1911).

K. H. Smith (May 10 to Sept. 13, 1911, and from Feb. 7, 1912, to date).

Junior Assistants.—C. P. Cotton (May 10 to Oct. 2, 1911).

E. R. Dafoe (May 10 to Oct. 2, 1911).

Reclamation Investigations:

Chief Engineer.—Wm. Ogilvie, D.L.S. Assistant Engineer.—W. C. Gillis, B.Sc. (June 10 to Nov., 1911).

WATER-POWER REGULATIONS.

Regulations governing the mode of granting water-power privileges in the Provinces of Manitoba, Saskatchewan, Alberta and the Northwest Territories, were established by Orders in Council dated June 2, 1909, June 8, 1909, April 20, 1910, and January 24, 1911, pursuant to Section 35 of the Dominion Lands Act.

WATER-POWER DEVELOPMENTS.

Several important power developments have already been carried on to successful completion in the west, notably,—the muncipal deve'opment of the city of Winnipeg at Point du Bois falls on the Winnipeg river, having an ultimate power capacity as at present designed of 65,000 H.P.; the Winnipeg Electric Railway Company's plant on the Pinawa channel of the same river, where some 27,000 H.P. is now regularly developed; (these two developments now supply Winnipeg's power requirements); the plant of the Calgary Power Company at Horseshoe falls on the Bow river, about forty miles from Calgary, furnishing 12,000 H.P., mainly for use in Calgary; the Western Canada Power Company's plant at Stave falls on the Stave river, B.C., having an ultimate capacity of 50,000 H.P.; and the Vancouver Power Company's plant at Coquitlam and Buntzen lakes, developing now about 42,000 H.P., and ultimately, on the completion of the Coquitlam dam, 82,500 H.P. These latter two plants furnish the coast district of British Columbia with power, including the cities of Vancouver and New Westminster, and all city and interurban tramlines.

COQUITLAM DAM.

With regard to the storage dam of the Vancouver Power Company at Coquitlam lake, B.C., Coquitlam lake, situated within 15 miles of the cities of Vancouver and New Westminster, has an area of 2,300 acres; drainage area of about 100 square miles, and an annual precipitation of 150 inches. Its altitude is 432 feet above sea level—thirty-two feet higher than Buntzen lake, of 500 acres in area, and separated from the Coquitlam by a range of mountains 3,000 to 4,000 feet high. The Vancouver Power Company's development as completed in 1906 consisted of a rock-filled timber crib structure, raising the level of Coquitlam lake ten feet for storage; a tunnel 12,775 feet long, driven through rock, between Lakes Coquitlam and Buntzen; a concrete dam at the outlet of Buntzen lake, giving about 6,000 acre feet of storage in that lake; steel pipes 1,800 feet long connecting this dam to the power house at sea level, on the north arm of Burrard Inlet, where a static head of 400 feet is obtained; and transmission lines to Vancouver, New Westminster, Burnaby and Lulu island. A rapidly increasing power load necessitated the development of the com-

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pany's scheme to its maximum capacity, and the company's engineers advised the enlargement of the tunnel between Lakes Coquitlam and Buntzen, and the storage of all the waters of Coquitlam lake by means of a new storage dam at its outlet. The condition at the only available site necessitated an earthen dam of the hydraulicfilled type, one entirely new to Canada. In June, 1909, the department was asked to approve of the construction of a large earth dam of the hydraulic-filled type, immediately below the old timber crib dam. Under an agreement, dated March 24, 1910, the company was authorized to proceed with the proposed dam, according to plans to be submitted to, and approved by, the department. The people in the district immediately below were strongly opposed to this type of structure and demanded a dam of the gravity type, either solid concrete or stone. The situation was further complicated on account of Coquitlam lake being the source of domestic water supply for an extensive contiguous territory, including the city of New Westminster, the municipalities of Burnaby, Coquitlam, &c., which will within a few years have a large population. In view of the absolute necessity for the government ensuring a safe and stable structure, for allaying public alarm, and for the protection of the domestic water supply of the city of New Westminster, eminent expert advice was sought, and the services of John R. Freeman, C.E., of Providence, U.S.A., were retained. Under Mr. Freeman's direction a very careful and exhaustive exploration of the Coquitlam site was made, and finally, after many conferences with engineers of the company and of the department, he approved of a satisfactory design, which was formally sanctioned by the department on February 27, 1912. Construction operations have been progressing vigorously since then, under the constant inspection of the department engineer, Mr. R. S. Stronach, representing Mr. Freeman. The retaining of Mr. Freeman as superintending engineer of the design and construction of this dam, and of the sanitary conditions of the whole Coquitlam reserve, has almost entirely allayed public alarm as to its safety and stability, and satisfied the demands of the city of New Westminster regarding its domestic water supply, and will assist the company in carrying to completion what will be one of the most noted engineering structures on the continent. Mr. Stronach, as resident inspecting engineer, representing the department and Mr. Freeman, has been in continuous attendance at the dam, with the exception of a short period from November 1, 1911, to January 1, 1912, when he was relieved by Mr. M. C. Hendry, B.A.Sc. In addition to his duties as inspecting engineer of the dam, Mr. Stronach has acted as sanitary inspector of the whole Cequitlam Reserve.

MINNEWANKA DAM.

The Calgary Power Company, Limited, has found that the market served by its Horseshoe falls hydro-electric power plant demands an increased power supply greater than is available from the unregulated low water flowage of the Bow river. Conservation of this river's floo'd waters in storage basins has been imperative in the interest of this company for some time. The comprehensive investigations of this branch in respect to storage and power possibilities of the Bow river show that storage is essential to the proper utilization of the water for power purposes, and that storage can be easily and conveniently provided at several sites on its upper reaches. Lake Minnewanka offered the best and cheapest location for securing immediate storage, and as it was particularly urgent that the company should have the necessary works completed in time to store the flood flow of this season, the department authorized it to construct a storage dam at the outlet of Lake Minnewanka. This dam will allow for the storage of 44,000 acre feet of water and will ensure an average flow throughout the year at the company's Horseshoe falls plant of 1,000 second feet. The location of the lake and of the dam being within the Rocky Mountains Park, and frequented by tourists visiting Banff, the whole situation was placed before the Dominion Parks Branch, to ensure that the company's plans would be carried out without marring the natural beauties of the vicinity or the attractiveness of the park. Upon consideration of the whole matter by the Parks Branch and this branch, it was decided, on the advice of Mr. C. H. Mitchell, consulting engineer to the department, to incorporate in the dam an intake for a future small hydro-electric plant, to be operative for park purposes. In this connection the department is retaining the right to draw from the lake at all seasons 150 second feet of water.

Work has been proceeding at the dam site since the middle of February, and already a considerable portion of the preliminary work has been completed. The unwatering of the foundation is at present being rapidly carried out, and should no unexpected trouble arise the dam will be satisfactorily completed in time to store this season's flood flow. M. C. Hendry, B.A.Se., an engineer of this Branch, is now on the ground looking after the interests of both the Dominion Parks Branch and the Water-Power Branch.

SMALL WATER-POWERS.

Many applications for the right to develop small powers of less capacity than 150 H.P. have been placed before the department. These applications are in many cases made by homesteaders, with the intention of putting in a water wheel on a small stream flowing through or near their homesteads; others are from men wishing to establish small flour or lumber mills on land held in fee. In the summer of 1911 Mr. B. E. Norrish, an engineer of this branch, made an inspection of some thirteen applications in connection with small power projects before the department, and as a result of his investigations it has been recommended that the Water Power Regulations be amended to provide simple, general means of authorizing these schemes, by the issue of a lease and license, as may be required, on such terms as may be considered necessary in each particular ease.

HYDROGRAPHIC SURVEYS.

RAILWAY BELT, B.C.

In April, 1911, a hydrographic survey of the railway belt of British Columbia was inaugurated, with Mr. P. A. Carson, B.A., D.L.S., in direct charge, with a staff of three young graduates of the School of Practical Science, of the University of Toronto.

The objects of the survey were: (1) To investigate the complex water rights situation on the ground; (2) To suggest a practicable and efficient form of administration; (3) To study the water supply of all streams and the water resources of the railway belt; (4) To investigate storage possibilities with a view to conserving the limited water supply; (5) To make surveys necessary to the proper use and conservation of the said water resources; and, (6) To report on the various irrigation and reclamation projects before the department.

In the study of the available water supply and the investigation of water resources, it was decided to follow as far as practicable the methods of the United States Hydrographic Survey, whose work, during the past decade, has proved so valuable, particularly to the western states of the American Union. The current meter and other instruments and equipment, and the field and office methods of the United States Hydrographic Survey have been adopted almost to the minutest detail, and in order that the greatest efficiency should be attained, one of the expert hydrographers of the United States Survey, viz., Mr. R. C. Adams, was borrowed from Washington for a period of three months. Under Mr. Adams' direction a large number of gauging stations were established on the principal contentious streams of the arid portion of the railway belt. Discharge measurements by current meter were taken at different

stages of the flow, and systematic gaugings commenced. From these data were deduced the daily, monthly, seasonal, maximum and minimum discharge of the various streams.

This information regarding the available water supply is essential to the satisfactory administration of water rights, and when published will be of inestimable value to the general public interested in irrigation, water-power, municipal water supply and the domestic use of water.

The hydrographic survey was commenced early in May, 1911, with an office at Kamloops, and during the summer the work was confined almost entirely to the irrigation district of the dry portion of the railway belt, owing to the exigencies of the water rights situation. About seventy-five gauging stations were established in the first four months. After the irrigation season had closed, the work was extended to the coast district, from Lytton to New Westminster, and to the mountain district east of Sicamous, about twenty-five more gauging stations being established. Systematic studies of the streams which offer water-power possibilities were commenced, with a view to placing before the government and the public a reliable inventory of the developed and undeveloped water-powers in the railway belt. Studies of the run-off, &c., were also begun of the main waterways, such as the Fraser, Thompson and Columbia rivers, and their larger tributaries.

During the winter a start was made on a number of the larger streams, to study the flow under winter conditions. In the railway belt severe winter conditions are met only between Revelstoke and the summit of the Rockies, but the winter flow is important in that district, being the governing factor in the power possibilities of its many streams.

During May, June, July and August, Messrs. Carlyle, Cline and Richardson investigated water rights in the dry portion of the railway belt, tracing old records and making list of same; reporting on the water supply in each locality; whether the water was being beneficially used; inspecting ditches, flumes and other irrigation works; making a rough survey of the acreage of irrigable and cultivated land owned by each record holder; and so on. As well, these assistant engineers established gauging stations on nearly all the important and contentious streams in the arid portion of the belt, and made current meter measurements of the flow at various stages.

During September and October, Mr. Richardson extended the hydrographic work as far east as Revelstoke and Golden, establishing gauges and making meterings. From Salmon Arm to Golden, the climate is humid, and very little water is used for irrigation. In this district power, navigation, lumbering and municipal water supply are important uses of water.

In October Messrs. Cline and Smith extended the work from Lytton to New Westminster, and investigated most of the important developed and undeveloped power streams in the coast district, establishing gauging stations where advisable.

Mr. A. T. Milner acted as stenographer and clerical assistant in the office at Kamloops. He was transferred on January 29, 1912, to Coquitlam dam, as clerical assistant to R. S. Stronach, Departmental Resident Engineer on the Coquitlam dam of the Vancouver Power Company.

As Chief Engineer, Mr. Carson superintended the inauguration of the Hydrographic survey, and as well inspected and reported upon all applications for irrigation lands within the railway belt, reclamation schemes, foreshore rights, and all matters relating to water and water rights.

On November 1 Mr. Carson was called to Ottawa regarding the proposed transfer of administrative authority over water and water rights, from the Dominion to the Provincial Government. He returned to Kamloops on January 12. During his absence in the east the survey staff at Kamloops was engaged in compiling field data gathered during the season, making discharge curves, computing daily discharges, &c. Some studies of winter flow under ice cover were also made on the larger rivers.

A comprehensive hydrographic report of the operations of the railway belt hydrographic survey for the years 1911 and 1912 is now in course of compilation. It will include a gazetteer of all streams, rivers, lakes, and other watercourses in the railway belt, giving their authoritative and local names; their location; estimates of their runoff, &c.; the present and possible uses of the water; and so forth. Hydrographic data will also be published giving the daily, monthly, yearly, maximum and minimum discharges of about one hundred of the most important streams in the belt, including the contentious irrigation creeks of the dry belt, the larger arteries, such as the Fraser, Thompson, and Columbia rivers, and many important power streams, viz.: Adams river, Kicking Horse river, Illecillewaet river, Spillimacheen river, Shuswap river, Bonaparte river, Nicola river, Nahatatch river, Anderson river, Coquihalla river, Chehalis river, Lillooet river, Chilliwack river, Jones lake, Stave river, Mesliloet river, &c. In addition the report will contain notes on precipitation, evaporation, conservation by storage, flood prevention, drainage, and like topics pertinent to the administration of water and the present and future study of its manifold uses.

PROVINCE OF MANITOBA.

In the spring of 1912 it was decided to extend the hydrographic survey investigations of southeastern Manitoba, commenced by Mr. McLean in connection with his investigations of the power and storage possibilities of the Winnipeg river system, to cover all the province. Permanent office accommodation was obtained in the Chamber of Commerce Block, Winnipeg, and a small staff, consisting of S. S. Scovil, B.Sc., G. H. Burnham, B.A.Sc., and A Perie, clerical assistant, was appointed to commence the work. Apart from the Winnipeg river situation very little has been accomplished except the securing of the necessary outfit and supplies, and the collating of all known existing hydrographic data of the province.

WATER POWER AND STORAGE INVESTIGATIONS.

WINNIPEG RIVER.

The Winnipeg river is naturally a remarkably well-regulated river, its flowage varying in average years only from 13,000 second feet to 45,000 second feet. Within the province of Manitoba it falls 265 feet, of which 224 feet can be concentrated at seven possible power sites, and some 243,300 24-hour H.P., of theoretic energy, developed. With storage, easily and cheaply obtainable in its upper waters, this amount of theoretic horse-power can be more than doubled. The possibility of an ultimate development of 583,500 H.P., within a radius of seventy-five miles of the city of Winnipeg, to supply the future manufacturing requirements of that rapidly growing city, is of great moment to the future development of the west, and particularly to the province of Manitoba.

Recognizing the importance of having the power possibilities of this river developed systematically rather than at random, the Water-Power Branch is carrying on an extensive power survey of the Winnipeg river in Manitoba, and its upper waters in Ontario, with the object of ascertaining its power resources and with especial attention to the most efficient method of concentrating the fall of the river for power, having in mind at the same time the canalization of the river. In view of the important questions involved the services of both Mr. J. R. Freeman and Mr. J. B. McRae, Consulting Engineers, were secured to advise in the organization and scope of the investigations. These two engineers, accompanied by J. T. Johnston and D. L. McLean, made a reconnaissance of the river in August, 1911, from Kenora to Lake Winnipeg, as a result of which a staff of engineers, with Mr. McLean in charge, was organized, equipped, and immediately placed in the field. The work has been progressing very

satisfactorily under Mr. McRae's continuous superintendence and will be completed in another year, when the department will be in a position to dictate a development of the river's power resources that will contemplate their maximum possible utilization, having in mind navigation as well as power. If the complete development aimed at is realized navigation could easily be provided from Kenora to Lake Winnipeg merely by the construction of locks in existing power dams, and at comparatively little extra expense.

BOW RIVER POWER AND STORAGE INVESTIGATIONS.

Owing to the increasing demand for power in southwestern Alberta, and the consequent activity of private and municipal enterprises to supply the same by utilizing the waters of the Bow river and its feeders, numerous applications for power and for storage privileges were received by the department, many of which conflicted with each other both in respect to the market which they were to supply and the portion of the river which was to be utilized; many also gave evidence of a very superficial study of the capacity of the site in question and a very scanty knowledge of the detail information required, as well as of the outstanding features necessary for an economical development.

In addition to the various applications and projects before the department, actual construction was practically completed in connection with a power development at the Horseshoe falls on Bow river, by the Calgary Power Company, Limited, in the construction of which defects in the rock foundations beneath the dam had been uncovered. These unforeseen conditions necessitated a revision of the plans of the dam, involving extensive safety measures being provided, the sufficiency of which being a matter of vital interest to the district at large required very careful investigation by the department before being approved.

The situation in the whole district was such that it became imperative that the department should investigate the whole in the field, and thus be competent to lay down a policy of development which would serve the interests of all the district. This course was doubly necessary since the available water-power in this section is not excessive and a careful conservation is needful in order to supply the growing demand.

Early in 1911, Mr. C. H. Mitchell, consulting engineer of Toronto, was retained to advise on an extensive power and storage investigation of the Bow River system, where both power and irrigation have important interests, requiring an exhaustive study of the water resources in order that both may be adequately provided for. Under his direction a comprehensive study of the whole power capacity of the Upper Bow waters, together with its conservation possibilities, was commenced and has since been vigorously prosecuted with Mr. M. C. Hendry, B.A.Sc., as Chief Engineer in the field.

The investigation naturally divided itself into two heads, viz.: the Elbow river and the Bow river, a short resumé of which follows hereafter. As it is the intention of the department to publish in complete form a full and careful analysis of the whole basin as soon as the field work is complete, it has not been considered advisable to go deeply into the subject for the purpose of this report, especially as the field data necessary for the same are not yet completely gathered.

THE ELBOW RIVER.

This river is one of the larger tributaries of the upper Bow, joining the latter at Calgary. Coming as it does from the eastern slopes of the Rocky mountains a considerable portion of its waters originates in the glaciers. The flood period is in the early summer when, in addition to the usual May and June rains, the melting of snov and ice on the mountains by the hot summer sun brings down a large volume of water. The fluctuations are very sudden, and especially is this noticeable in the canyons and contracted portions of the river bed, where from day to day, and even from hour to 25-i-15

hour, the water levels change in an extraordinary manner. Sudden and heavy rains, such as occur in mountainous regions in the summer, also tend to cause great fluctuations and to augment those due to temperature.

The gravel covering which overlies the rocky river bed gives rise to a feature of river flow which it is well to consider, and which increases the difficulty of securing an accurate measurement of the actual discharge. A considerable underflow through this gravel is constantly taking place, which is not recorded in the surface flow, except at such places as where the flow takes place through a rock outcrop, or over a rock

founded dam; this latter condition would hold at all power developments.

Three conflicting applications for power in the vicinity of the junction of Canyon creek with the Elbow required field investigation, and after a personal visit to the site in May, 1911, by Mr. Mitchell, the necessary field surveys were proceeded with by Mr. Hendry's party. The completion of the field work, taking in all about four weeks, confirmed the opinion formed on inspection, and clearly established the fact that none of the submitted schemes were economically feasible, and consideration of the same was therefore no longer entertained by the department. It was conclusively established that the magnitude of the construction works necessary for the development of any site along the river, considered along with the low minimum flow, rendered any development out of the question unless taken in conjunction with a storage scheme in the upper waters; a feasible scheme involving this feature was investigated and reported upon.

THE BOW RIVER.

The general description of the Elbow river is applicable to the Bow above Calgary. The river offers several excellent power sites, and the applications before the department gave evidence that this fact was appreciated by the public.

The Calgary Power Company's plant at Horseshoe falls, built for transmitting power to Calgary, was placed in operation in May, 1911. There were installed at this time two units of a total capacity of 6,500 horse-power, and the company was even at that time looking around for means to increase its output, in order to meet the insistent growing demand. The source of this increase was naturally storage in the upper waters. Extreme safety precautions over and above those called for in the original design had been incorporated in the dam, due to a poor stratum of rock being exposed during the excavation of the foundations. These measures of safety were recommended by Mr. J. R. Freeman, of Providence, U.S.A., who was retained by the company to advise them when the foundation conditions were exposed, and consisted in part of increasing the section of the dam, provision for draining the body and foundation of the same after construction, thoroughly sealing the doubtful rock strata by drilling the same to a depth of 40 feet and pumping the whole full of cement grout under pressure, and by various other minor devices. A careful inspection of the plant on May 3 and 12 and July 4, gave evidence that the whole plant had been designed and built in a most careful and permanent manner, but since certain of the safety measures recommended to the Company by Mr. Freeman had not yet been completed it was decided to withhold the departmental approval of the whole until such time as these measures were completed or were shown by inspection of the plant after a year's operation to be unnecessary.

The vital points requiring hasty action on the part of the department in addition to the foregoing were in connection with the Kananaskis falls, and the storage possibilities of the upper waters, and on this basis the field investigations for the season were planned. These consisted in a thorough reconnaissance in the earlier part of the season of the power reach of the Bow river from Radnor to Kananaskis falls, and of the upper waters, more especially Kananaskis lakes, Spray lakes, Bow and Hector lakes and Lake Minnewanka. The purpose of this reconnaissance was to lay out a comprehensive plan of attack for the field parties, and to determine with as little delay as

possible what storage capacities existed which were worthy of detailed investigation. At the close of the season the most pressing features of these two questions had been dealt with in the field and all the needful surveys made and the data gathered.

The Kananaskis power site has been completely surveyed and the most efficient method of development determined. The best and most easily developed natural storage basin of the upper waters was found in Lake Minnewanka, and the necessary surveys were completed before the closing of the season.

POWER IN SOUTHERN SASKATCHEWAN.

Reconnaissance surveys to date show that it is questionable whether an economic development of water-power can be made in the southern portion of the province of Saskatchewan. As power is essential to the progress and development of the many cities and towns in this province the department should fully investigate other sources of power than water-power. This applies particularly to Swift Current, Moosejaw, Regina, Broadview, and their respective districts.

In southeastern Saskatchewan there are several collieries in the Estevan district (125 miles from Regina) shipping coal in considerable quantities. Some of these lignites have been tested by the Dominion Department of Mines, and found to give fair results for steam raising and excellent results for making producer gas. Similar coals exist 150 miles further west at Wood Mountain, about 80 miles from Moosejaw. Coal has also been located at Rouleau, about 25 miles from Regina, and it is stated to exist within ten miles from that place. There is also coal at Maple creek, and mines have been opened at Swift Current and at Cypress Hills.

In Western Saskatchewan there are very extensive coal fields between the North and South Saskatchewan rivers, and in particular seams at Brock and Eagle Hills,

and 90 miles from Battleford and Saskatchewan.

The coal field in southern Saskatchewan is an extension of the North Dakota field. The United States Bureau of Mines states that these lignites used in gas producers develop as much power as the best West Virginia bituminous coals burnt under steam boilers.

There is every reason to believe that power can be produced at the coal mines and distributed over a wide area to towns now without cheap power, at rates that will compare favourably with any but the best water-powers.

Natural gas has been found at Maple creek (100 miles west of Swift Current) where a flow was struck with good pressure at 1,200 feet, and a company has been formed to bore at Swift Current.

It is the intention of the Branch to thoroughly investigate the power situation in this district in all its phases during the coming season.

FORESHORE.

Prior to December, 1910, the administration of foreshore lands was carried on under the jurisdiction of the Department of Marine and Fisheries. At that time the Deputy Minister of Justice ruled that the administration of foreshore lands other than those in public harbours was one properly belonging to the Department of the Interior. Following this decision the foreshore matters were dealt with by the Land Patents Branch, the British Columbia Lands Branch, and by the Water-Power Branch. Finally, however, all foreshore matters were handed over to the Power Branch to deal with, and a complete study of the whole situation is being made, with a view to recommending some definite policy for administering all Dominion land under water.

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RECLAMATION INVESTIGATIONS.

In view of the rapid opening up of the country in the vicinity of The Pas, Manitoba, due to the prospective early construction of the Hudson Bay railway, it was considered advisable to carefully investigate the possibility of reclamation of the low lying and, at times, submerged lands in that district. To this end Mr. William Ogilvie, D.L.S., was placed in charge of a field party, with instructions to explore fully the whole extent of the low lands in this district, and to investigate any feasible method of reclamation.

The result of these investigations showed that enormous stretches of territory were subject to overflow from the Saskatchewan river during periods of high water. The river in the vicinity of The Pas flows through a flat alluvial territory, with a drop of only 64 feet in 200 miles, or 3.12 feet per mile. The current is as a result extremely sluggish, and the flood waters during the season of high flow can only be accommodated by submerging large sections of the country. As is the case with other rivers flowing under similar conditions, the immediate banks, though of themselves low, are yet higher than the country to the rear, the banks having been gradually built up by the deposition of the heavier portions of the material carried in suspension during flood periods. A result of these conditions is a frequent breaking of the banks, and a cutting of entirely new channels, carrying sometimes the partial, and sometimes the entire flow of the river. New channels of this description have been formed frequently in the past and are in process of formation at present. Any means of retaining the river in its bed, and of reclaiming the great stretches of affected land, is most desirable for the general development of the district.

Upon completion of his explorations and studies of the river, Mr. Ogilvie reached the conclusion that it might be feasible to lower the surface level of Cedar lake by about 15 feet, the body of water into which the portion of the Saskatchewan river under consideration discharges. This would undoubtedly have the immediate effect of draining a great extent of what is now partially submerged land in the vicinity of the lake, and would also increase the current and consequently deepen the bed of the river for a considerable distance upstream, and as a result reclaim great stretches of land along the shores.

The whole question being of such great importance to the development of that district, arrangements are being made to further study the problem, giving especial attention to the means and cost of lowering Cedar lake the proposed 15 feet and the immediate effect of such lowering on the surrounding lands. This will be proceeded with during the coming season.

I have the honour to be, sir,

Your obedient servant,

J. B. CHALLIES,

Superintendent.

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PART II

IMMIGRATION



IMMIGRATION

REPORT OF THE SUPERINTENDENT OF IMMIGRATION.

DEPARTMENT OF THE INTERIOR, OTTAWA, May 1, 1912.

W. W. CORY, Esq., C.M.G.,
Deputy Minister of the Interior,
Ottawa, Ont.

SR,—I herewith transmit the annual reports on immigration.

The following tables have been compiled in my office:—

IMMIGRANT ARRIVALS.

SUMMARY for the Fiscal Year 1911-12.

Per ocean travel:—		
Quebec	125,950	
Halifax	34,874	
St. John	25,772	
Halifax St. John Victoria	5,389	
Vorth Cudney	0,000	
North Sydney. Vancouver	2,010	
	2,216	
New York		
Portland		
Boston		
Philadelphia		
Baltimore	23,481	220,527
From the United States.		133,710
From the Outled States		155,710
Total		954 997
LUCAL		004,201

COMPARATIVE STATEMENT.

Immigration to Canada, via ocean ports, by months, for the Fiscal Year 1911-12, compared with that of the Fiscal Year 1910-11.

	1910–11.				1911–12.			
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.
April. May June July August September October November December January February Mark	19,420 20,556 13,437 8,630 7,258 6,540 6,017 3,813 2,553 1,960 3,492 17,330	4,811 7,329 6,020 4,363 4,201 4,373 4,491 2,512 1,373 753 1,486 4,703	3,588 5,210 4,182 3,026 2,828 2,865 3,084 1,764 980 433 838 3,094	27,819 33,395 23,689 16,011 14,287 13,778 13,592 8,089 4,906 3,146 5,816 25,147	24,880 27,427 14,005 8,973 5,885 6 968 5,033 3,588 2,500 2,202 3,267 18,882	6,324 11,223 8,266 5,478 4,220 6,289 5,102 2,569 1,470 1,041 1,379 4,534	4,079 7,410 5,702 4,158 2,991 4,336 3,511 1,789 975 605 743 2,723	35,283 46,060 27,973 18,609 17,593 13,646 7,946 4,945 3,848 5,389 26,139
7 otals	111,326	46,415	31,892	189,633	123,610	57,895	39,022	220,52

COMPARATIVE STATEMENT.

Immigration from the United States to Canada, by months, for the Fiscal Year 1911-12, compared with that of the Fiscal Year 1910-11.

	1910–11.			1911-12.				
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.
April May June July August September October November December January February March	11,924 8,508 6,275 5,464 6,974 6,880 6,123 4,167 2,934 2,576 3,011 9,036	3,951 2,938 2,486 2,046 1,886 1,780 1,863 1,632 1,268 1,013 1,098 2,662	4,488 2,748 2,182 1,689 1,630 1,596 1,815 1,408 1,047 726 780 2,847	20,363 14,194 10,943 9,199 10,490 10,256 9,801 7,207 5,249 4,315 4,889 14,545	10,621 10,103 7,736 7,442 12,807 7,884 6,335 4,832 3,176 2,663 3,658 10,419	3,015 2,733 2,367 2,106 2,317 1,981 2,180 1,723 1,420 1,059 1,225 2,951	2,761 2,534 1,932 1,464 1,895 1,619 1,791 1,558 1,083 619 889 2,882	16.397 15,370 12,035 11,012 17,019 11,484 10,256 8,113 5,679 4,341 5,752 16,252
Totals	73,872	24,623	22,956	121,451	87,656	25,027	21,027	133,710

COMPARATIVE STATEMENT.

Total Immigration for Canada, by months, for the Fiscal Year 1911-12, compared with that of the Fiscal Year 1910-11.

		1910)-11.		1911–12.						
	Males Females. Cl		Children.	Totals.	Males.	Females.	Children.	Totals.			
April	31,344	8,762	8,076	48,182	35,501	9,339	6,840	51,680			
May	29,364	10,267	7,958	47,589	37,530	13,956	9,944	61,430			
June	19,712 $14,094$	8,506 6,409	6,364 4,715	34,582 $25,218$	$21,741 \\ 16,415$	10,633 7,584	7,634 5,622	40,008			
July August	14,232	6,087	4,458	$\frac{25,213}{24,777}$	18,692	6,537	4,886	29,621 30,115			
September	13,420	6,153	4,461	24,034	14,852	8,270	5,955	29,077			
October	12,140	6,354	4,899	23,393	11,368	7,232	5,302	23,902			
November	7,980	4,144	3,172	15,296	8,420	4,292	3,347	16,059			
December	5,487	2,641	2,027	10,155	5,676	2,890	2,058	10,62			
January	4,536	1,766	1,159	7,461	4,865	2,100	1,224	8,189			
February	6,503	2,584	1,618	10,705	6,905	2,604	1,632	11,141			
March	26,386	7,365	5,941	39,692	29,301	7,485	5,605	42,39			
Totals	185,198	71,038	54,848	311,084	211,266	82,922	60,049	354,23			

COMPARATIVE STATEMENT.

Total Immigration, for Canada, by ports, for the Fiscal Year 1911-12, compared with that of the Fiscal Year 1910-11.

		191	0–11.			1911	-12.	
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.
Quebec. Halifax. St. John. Victoria. North Sydney. Vancouver. United States ports (New York, Portland Boston, Philadelphia		30,684 6,627 5,039 283 431 171	20,766 5,030 3,436 228 255 257	106,621 33,658 22,441 3,686 2,718 2,779	58,087 22,896 17,602 4,620 2,203 1,845	40,227 7,100 5,038 426 441 162	27,636,* 4,878 3,132 343 201 209	125,950 34,874 25,772 5,389 2,845 2,216
and Baltimore) From the United States	12,630 73,872	$3,180 \\ 24,623$	1,920 $22,956$	17,730 121,451	16,357 87,656	4,501 25,027	2,623 21,027	23,481 133,710
Totals	185,198	71,038	54,848	311,084	211.266	82,922	60,049	354,237

\$3\$ GEORGE V., A. 1913 Sex, Occupation and Destination of total Immigrant arrivals

									TRAI	DE OR			
	Males.				Farm	armers Labo Class.		Gener	al Labo	ourers.	Mechanics.		
		Females.	Children.	Totals	Males.	Females.	Children.	Males.	Femules.	Children.	Males.	Females.	Children.
Via ocean ports		1	,	220,527 133,710					11.		· 1		1
Totals	211,266	82,922	60,049	354,237	86,237	21,691	24,460	76,512	15,597	14,420	19,986	7,718	7,224

SESSIONAL PAPER No. 25 for Canada, for the Fiscal Year ended March 31, 1912.

Occup	Occupation.									Destination.							
	Clerks, Miners. S N				Not	Classi	fied.	nces.				an.		Columbia.			
Males.	Females.	Chidren.	Males	Females.	Children.	Female ser	Males.	Females.	Children.	Maritime Provi	Quebec.	Ontario.	Manitoba.	Saskatchewan	Alberta.	British Colt	Yukon.
9,560	2655	1943	2482	763	1103	18,390	8,694	9,061	7,163	9,633	34,876	78,853	32,663	18,145	17,386	28,958	13
2,242	814	378	2368	188	160	2,300	3,185	3,745	3,198	6,340	15,726	21,374	10,814	28,013	28,571	22,871	1
11,802	3469	2321	4850	951	1263	20,690	11,879	12,806	10,361	15,973	50,602	100227	43,477	46,158	45,957	51,829	14

COMPARATIVE STATEMENT.

Total Immigration to Canada, by Nationalities, for the Fiscal Year 1911-12, compared with that of the Fiscal Year 1910-11, showing increase or decrease of each Nationality.

Page					
English. S4,707 95,107 10,400 Welsh. 1,5005 1,699 194 S2,0000 1,699 1,690 S2,000 S2,0		١			
English. S4,707 95,107 10,400 Welsh. 1,500 1,699 194 S2,908 3,064 Irish. 0,577 8,327 1,450 Irish. 123,013 138,121 15,108 Irish. 123,013 138,121 15,108 Irish. 123,013 138,121 15,108 Irish. 123,013 138,121 15,108 Irish.		1010 11	1011 10	Tuesday	Doorses
Welsh. 1,505 1,699 194 Scotch 29,924 32,988 3,664 Irish. 6,877 8,327 1,450 Total British 123,013 138,121 15,108 African, South 86 144 58 Austrainan 266 184 58 Austrain, N.E.S. 7,891 4,871 3,020 Boheman 107 143 36 32 Bukowinian 76 323 16 572 Croatian 121 4 38 14 12 Calician 3553 1,54 1,550 14 1,50 Hungarian, N.E.S 756 482 274 44 40 258 274 Magyar 142 400 258 274 46 6 147 S Stowak 122 168 1,47 S 5 6 147 S 14 4 6 14 <th< td=""><td></td><td>1910-11.</td><td>1911-12.</td><td>Increase.</td><td>Decrease.</td></th<>		1910-11.	1911-12.	Increase.	Decrease.
Welsh. 1,505 1,699 194 Scotch 29,924 32,988 3,064 Irish. 6,877 8,327 1,450 Total British 123,013 138,121 15,108 African, South 86 144 58 Australian 266 184 82 Austrain, N.E.S. 7,891 4,871 3,020 Boheman 107 143 36 572 Croatian 191 323 160 572 Croatian 191 38 14 61 Calician 345 3,54 14 1250 Hungarian, N.E.S 756 482 224 488 Magyar 142 400 288 14 65 Ruthenia 2,869 13,346 147 8 12 26 482 274 44 40 288 274 8 14 6 6 14 6 6 14					
Welsh. 1,505 1,699 194 Scotch 29,924 32,988 3,064 Irish. 6,877 8,327 1,450 Total British 123,013 138,121 15,108 African, South 86 144 58 Australian 266 184 82 Austrain, N.E.S. 7,891 4,871 3,020 Boheman 107 143 36 572 Croatian 191 323 160 572 Croatian 191 38 14 61 Calician 345 3,54 14 1250 Hungarian, N.E.S 756 482 224 488 Magyar 142 400 288 14 65 Ruthenia 2,869 13,346 147 8 12 26 482 274 44 40 288 274 8 14 6 6 14 6 6 14					
Scotch 29,924 32,988 3,064 Irish 6,877 8,327 1,150					
Trial British 123,013 138,121 15,108					
Total British 123,013 138,121 15,108				1 450	
African, South 86 144 58 Australian 266 184 82 Australian 107 143 36 Buhomian 107 143 36 Bukowinian 700 328 372 Croatian. 121 281 160 Dalmatian 324 38 14 Galician. 3,538 1,594 195 Hungarian, N.E.S 756 482 274 Magyar 142 400 258 Ruthenian 2,869 13,346 10,477 Slovak 122 168 46 Belgian 1,563 1,601 38 Bulgarian 1,688 3,259 2,227 Brazilian 1,168 3,1601 38 Bulgarian 1,088 3,259 2,227 Brazilian 1,168 3,1601 38 Bulgarian 1,089 3,259 2,277 Brazilian 1,177 146 French 931 1,077 146 French 931 1,077 146 French 1,244 2,094 53 German, N.E.S 2,530 4,645 2,115 Alsatian 1 1 1 Bavarian 2 4 2 4 2 Ruthenian 398 314 84 Bermudian 398 314 84 Bermudian 10 9 1 1 Bavarian 1 1 1 1 Bavarian 1 1 1 1 Bavarian 1 1 1 1 Bavarian 1 1 1 1 Bavarian 2 4 7 70 23 Greek 777 693 84 Hebrew, N.E.S 666 537 69 "Ruthenian 1 19 9 1 Jamaican 47 70 23 Greek 164 "Russian 4,188 4,460 272 "Russian 1 1 1 Jamaican 2 48 269 21 "Russian 4,188 4,460 272 "Russian 1 16 6 7 "Russian 1 16 6 7 "Russian 1 16 6 7 "Russian 1 16 6 7 "Greek 1 777 693 84 Hebrew, N.E.S 600 537 69 "Russian 1 19 4 15 Islain 1,665 2,773 1,708 "German 1 19 4 15 Islain 1,665 2,773 1,708 "German 1,065 2,773 1,708 "German 1,065 2,773 1,708 "Russian 1,066 4,709 "Rus					
Australan 266 184 82 Austrian, N.E.S 7,891 4,871 3,020 Bohemian 107 143 36 32 Croatian 121 281 160 20 Dalmatian 24 38 14 1.95 Croatian 3,553 1,594 1 1,95 Hungarian, N.E.S 756 482 25 274 Magyar 142 400 258 274 Magyar 142 400 258 278 Magyar 142 400 258 278 Magyar 142 400 258 278 Belgian 1,563 1,610 38 38 Bulgarian 1,068 3,295 2,227 13 Chinese 5,278 6,247 969 14 Chinese 5,278 6,247 969 14 Chinese 2,284 1,204 5 3 <th< td=""><td>Total British</td><td>123,013</td><td>138,121</td><td>15,108</td><td></td></th<>	Total British	123,013	138,121	15,108	
Australan 266 184 82 Austrian, N.E.S 7,891 4,871 3,020 Bohemian 107 143 36 32 Croatian 121 281 160 20 Dalmatian 24 38 14 1.95 Croatian 3,553 1,594 1 1,95 Hungarian, N.E.S 756 482 25 274 Magyar 142 400 258 274 Magyar 142 400 258 278 Magyar 142 400 258 278 Magyar 142 400 258 278 Belgian 1,563 1,610 38 38 Bulgarian 1,068 3,295 2,227 13 Chinese 5,278 6,247 969 14 Chinese 5,278 6,247 969 14 Chinese 2,284 1,204 5 3 <th< td=""><td></td><td></td><td></td><td></td><td></td></th<>					
Australan 266 184 82 Austrian, N.E.S 7,891 4,871 3,020 Bohemian 107 143 36 3,020 Bohemian 700 328 36 372 Croatian 121 281 160 20 Dalmatian 24 38 14 1950 Dalmatian 24 38 14 1950 Croatian 3,553 1,594 1 1950 Magyar 142 400 258 274 Magyar 142 400 258 274 Magyar 142 400 258 274 Belgian 1,563 1,610 38 38 Bulgarian 1,668 3,295 2,227 13 Chinese 5,278 6,247 969 14 Dutch 931 1,077 146 14 14 14 14 14 14 14 14	African, South	86	144	58	
Austrian, N.E.S	Australian				82
Bukowinian 760 328 372 Croatian 121 281 160 Dalmatian 24 38 14 Galician 3,553 1,594 1,959 Hungarian, N.F.S 756 482 274 Magyar 142 400 288 Rutherian 2,869 13,346 10,477 Slovak 122 168 46 Belgian 1,563 1,601 38 Bulgarian 1,668 3,295 2,227 Brazilian 13 1,677 146 Chinese 5,278 6,247 969 13 Ohutch 931 1,077 146 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 13 14 14 13 14 14 13 14 14 13 14 14 13 <td>Austrian, N.E.S</td> <td></td> <td></td> <td></td> <td>3,020</td>	Austrian, N.E.S				3,020
Croatian 121 281 160 Dalmatian 24 38 14 Galician. 3,553 1,594 1,959 Magyar. 142 400 258 Ruthenian 2,869 13,346 10,477 Slovak. 122 168 46 Belgian. 1,563 1,601 38 Bulgarian. 1,068 3,295 2,227 Brazilian. 13 13 13 Chinese. 5,278 6,247 969 Dutch. 931 1,077 146 French. 2,041 2,044 23 German, N.E.S. 2,530 4,645 2,115 Alsatian 1 1 1 Bavarian 2 4 2 Prussian 1 1 1 Bermudian 10 9 1 Jamaican 47 70 23 German 47 70 <t< td=""><td></td><td></td><td></td><td>36</td><td></td></t<>				36	
Dalmatian 24 38 14 1,950 Galician 3,553 1,594 1,950 274 Magyar 142 400 258 274 Magyar 1,959 13,346 10,447 288 Ruthenian 2,869 13,346 10,477 38 Belgian 1,563 1,601 38 38 Bulgarian 1,068 3,295 2,227 38 Brazilian 13 1077 16 16 Chinese 5,278 6,247 969 13 Dutch 931 1,077 146 16 French 2,041 2,094 53 215 Alsatian 1 1 1 1 French 2,041 2,094 53 1 German, Y.E.S. 2,530 4,645 2,115 Alsatian 3 1 1 1 1 Bavarian 1 1 1				100	372
Galician 3,553 1,594 1,259 Magyar 142 400 288 Magyar 2,869 13,346 10,477 Slovak 122 168 46 Belgian 1,563 1,601 38 Bulgarian 1,068 3,235 2,227 Brazilian 13 1,077 146 Chinese 5,278 6,247 969 Dutch 931 1,077 146 French 2,041 2,094 53 German, N.E.S 2,530 4,645 2,115 Alsatian 1 1 1 Bavarian 2 4 2 Prussian 1 1 1 Bermudian 398 314 84 Prussian 1 1 1 Jamaican 47 70 23 1 Greek 777 693 84 Hebrew, N.E.S 806 557 <td></td> <td></td> <td></td> <td></td> <td></td>					
Magyar. 142 400 258 R Ruthenian 2,869 13,346 10,477 1 Slovak 122 168 46 46 Belgian 1,663 1,603 1,603 1 60 38 Bulgarian 1,663 3,295 2,227 1 13 13 1 13 13 1 13 1 1 1 1 14 14 1	Galician			14	1.959
Magyar. 142 400 258 R Ruthenian 2,869 13,346 10,477 1 Slovak 122 168 46 46 Belgian 1,663 1,603 1,603 1 60 38 Bulgarian 1,663 3,295 2,227 1 13 13 1 13 13 1 13 1 1 1 1 14 14 1	Hungarian, N.E.S		482		
Slovak	Magyar	142	400		
Belgian 1,563 1,601 38 Brazilian 1068 3,295 2,227 Brazilian 13 13 13 13					
Bulgarian 1,068 3,295 2,227 Brazilian 13 13 Chinese 5,278 6,247 969 Dutch 931 1,077 146 French 2,041 2,094 53 German, N.E.S 2,530 4,645 2,115 Alsatian 1 1 1 Bavarian 2 4 2 Prussian 1 14 13 West Indian 398 314 84 Bermudian 10 9 1 Jamaican 47 70 23 Greek 777 693 84 Hebrew, N.E.S. 606 537 69 " Russian 4,188 4,400 272 3 " Polish 85 52 33 " Austrian 248 269 21 1 Italian 8,339 7,590 769 Japanese 437 765			168		
Brazilian 13 13 13 13 13 13 13 13 13 13 14 1969 146 146 146 146 146 146 146 146 146 146 146 146 146 146 146 146 146 147 146 147 146 147 146 147 146 147 146 147 148			2 205		
Chinese 5.278 6.247 969 Dutch 931 1,077 146 French 2,041 2,094 53 German, N.E.S. 2,530 4,645 2,115 Alsatian 1 1 1 Bavarian 2 4 2 Prussian 1 14 13 West Indian 398 314 84 Bermudian 10 9 1 Jamaican 47 70 23 Greek 777 693 84 Hebrew, N.E.S 606 537 69 " Russian 4,188 4,460 272 33 " Russian 248 269 21 1 Italian 8,359 7,590 769 Japanese 437 765 328 New Joundland 2,229 2,598 369 New Zealand 116 61 55 Portuguese			0,430	2,221	13
Dutch 931 1,077 146 French 2,041 2,094 53 German, N. E.S. 2,530 4,645 2,115 Alsatian 1 1 1 Bavarian 2 4 2 Prussian 1 14 13 West Indian 398 314 84 Bermudian 10 9 1 1 Jamaican 47 70 23 84 Hebrew, N.E.S. 606 537 69 84 Hebrew, N.E.S. 666 537 69	Chinese.		6,247	969	
Alsatian 1 3 8 4 1 1 1 3 8 4 1 1 1 3 4 1 8 4 1 1 1 1 1 3 4 1 1 1 1 1 3 4 1 1 1 1 1 1 1 1 3 4 1 1 1 1 3 4 1 1 1 3 4 1 1 1 1 4 1 1 1 4 4 1 1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1<			1,077	146	
Alsatian 1 3 8 4 1 1 1 3 8 4 1 1 1 3 4 1 8 4 1 1 1 1 1 3 4 1 1 1 1 1 3 4 1 1 1 1 1 1 1 1 3 4 1 1 1 1 3 4 1 1 1 3 4 1 1 1 1 4 1 1 1 4 4 1 1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1<	French				
Bavarian 2 4 2 Prussian 1 14 13 West Indian 398 314 84 Bermudian 10 9 1 Jamaican 47 70 23 Greek 777 693 84 Hebrew, N.E.S 606 537 69 " Russian 4,188 4,460 272 " Polish 85 52 33 " Austrian 248 269 21 " German 19 4 15 Italian 8,359 7,590 769 Japanese 437 765 328 New Jealand 2,229 2,598 369 New Zealand 116 61 55 Portsquese 13 6 7 Polish, N.E.S 269 642 373 "Austrian 1,065 2,773 1,708 "Austrian <td>German, N. E.S</td> <td>2,530</td> <td></td> <td></td> <td></td>	German, N. E.S	2,530			
Prussian 1 14 13 84 West Indian 398 314 84 Bernudian 10 9 1 Jamaican 47 70 23 Greek 777 693 84 Hebrew, N.E.S. 606 537 69 " Russian 4,188 4,460 272 " Polish 85 52 2 " Polish 85 52 21 " Austrian 248 269 21 " Austrian 19 4 15 Italian 8,359 7,590 769 Japanese 437 765 328 New Zealand 116 61 55 New Zealand 116 61 55 Portuguese 13 6 7 Polish, N.E.S 269 642 373 1708 " Austrian 1,065 2,773 1,708 2 " Russian		9			
West Indian 398 314 84 Bermudian 10 9 1 Jamaican 47 70 23 Greek 777 693 84 Hebrew, N.E.S. 606 537 69 "Russian 4,188 4,460 272 "Polish 85 52 2 33 "Austrian 248 269 21 15 Italian 8,359 7,590 769 769 Japanese 437 765 328 769 Japanese 437 765 328 769 Japanese 437 765 328 769 Japanese 16 61 55 Portuguese 13 6 7 Polish, N.E.S 269 642 373 17 "Austrian 1,065 2,773 1,708 2 "Russian 800 1,624 824 2 <td< td=""><td></td><td>ĩ</td><td></td><td></td><td></td></td<>		ĩ			
Bermudian 10 9 1 Jamaican 47 70 23 Greek 777 693 84 Hebrew, N.E.S. 606 537 69 "Russian 4,188 4,460 272 33 "Polish 85 52 33 "Austrian 248 269 21 1 "German 19 4 15 Italian 8,359 7,590 769 Japanese 437 765 328 New Useland 2,229 2,598 369 769 Japanese 13 6 7 769 <td< td=""><td></td><td></td><td></td><td></td><td>84</td></td<>					84
Greek 777 693 84 Hebrew, N.E.S. 606 537 69 "Russian 4,188 4,460 272 "Polish 85 52 33 "Austrian 248 269 21 "German 19 4 15 Italian 8,359 7,590 769 Japanese 437 765 328 New foundland 2,229 2,598 369 New Zealand 116 61 55 Portuguese 13 6 7 Polish, N.E.S 269 642 373 "Austrian 1,065 2,773 1,708 "German 43 21 22 "Russian 800 1,624 824 Persian 19 19 19 Roumanian 511<	Bermudian				1
Hebrew, N. E. S. 606 537 69 "Russian 4,188 4,460 272 "Polish 85 52 33 "Austrian 248 269 21 "German 19 4 15 Italian 8,359 7,590 769 Japanese 437 765 328 New Lealand 2,229 2,598 369 New Zealand 116 61 55 Portuguese 13 6 7 Polish, N.E.S 269 642 373 "Austrian 1,065 2,773 1,708 "German 43 21 22 "Russian 800 1,624 824 Persian 19 19 19 Roumanian 511 793 282 Russian, N.E.S 6,621 9,805 3,184 Finnish 2,132 1,646 486 Doukhobor 41 24 17 Spanish 197 191 6 <tr< td=""><td></td><td></td><td></td><td></td><td></td></tr<>					
Russian 4,188 4,460 272 33 1 15 15 15 15 15 15	Hobrary V F S				
Polish	Russian			272	03
" German 19 4 15 Japanese 437 7,65 328 Newfoundland 2,229 2,598 369 New Zealand 116 61 55 Portuguese 13 6 7 Polish, N.E.S 269 642 373 " Austrian 1,065 2,773 1,708 " German 43 21 22 " Russian 800 1,624 824 Persian 19 19 19 Russian, N.E.S 6,621 9,805 3,184 Finnish 2,132 1,646 486 Doukhobor 41 24 17 Spanish 197 191 6 Swiss 270 230 40 Servian 50 209 159 Danish 50 209 159 Danish 535 628 93<					33
Italian. 8,359 7,590 769 Japanese 437 765 328 Newfoundland. 2,229 2,598 369 New Zealand 116 61 55 Portuguese 13 6 7 Polish, N.E.S 269 642 373 " Austrian 1,065 2,773 1,708 " German 43 21 22 " Russian 800 1,624 824 Persian 19 19 Russian, N.E.S 6,621 9,805 3,184 Finnish 2,132 1,646 486 Doukhobor 41 24 17 Spanish 197 191 6 Swiss 270 230 40 Servian 50 209 159 Danjsh 50 209 159 Danjsh 535 628 93 Lcelandic 250 205 45 Swedish 3,213 2,394 819 Norwegian 2,169 1,692 477 Turkish, N.E.S 469 632 163 Armenian<				21	
Japanese					
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				990	769
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		9 990			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	New Zealand	116	61		55
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Portuguese	13	6		7
German 43 21 22 Russian 800 1,624 824 Persian 19 19 Roumanian 511 793 282 Russian, N.E.S 6,621 9,805 3,184 Finnish 2,132 1,646 486 Doukhobor 41 24 17 Spanish 197 191 6 Swiss 270 230 40 Servian 50 209 159 Danjsh 535 628 93 Leelandic 250 206 45 Swedish 3,213 2,394 819 Norwegian 2,169 1,692 477 Turkish, N.E.S 469 632 163 Armenian 20 60 40				373	
Russian. 800 1,624 824 Persian. 19 19 Roumanian. 511 793 282 Russian, N.E.S. 6,621 9,805 3,184 Finnish. 2,132 1,646 486 Doukhobor 41 24 17 Spanish. 197 191 6 Swiss. 270 230 40 Servian. 50 209 159 Danish. 535 628 93 Icelandic 250 205 45 Swedish 3,213 2,394 819 Norwegian. 2,169 1,692 477 Turkish, N.E.S. 469 632 163 Armenian. 20 60 40			2,773	1,708	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				89.4	22
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				024	1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Roumanian			282	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Russian, N.E.S	6,621	9,805	3,184	
Spanish. 197 191 6 Swiss. 270 230 40 Servian. 50 209 159 Danish. 535 628 93 Icelandic. 250 205 45 Swedish 3,213 2,394 819 Norwegian. 2,169 1,692 477 Turkish, N.E.S. 469 632 163 Armenian. 20 60 40					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Swiss				
Danish. 535 628 93 Icelandic. 250 205 45 Swedish 3,213 2,394 819 Norwegian. 2,169 1,692 477 Turkish, N.E.S. 469 632 163 Armenian. 20 60 40				159	10
	Danish	535	628		
Norwegian. 2,169 1,692 477 Turkish, N.E.S. 469 632 163 Armenian. 20 60 40	Icelandic				
Turkish, N.E.S. 469 632 163 Armenian. 20 60 40					
Armenian. 20 60 40	Turkish N F S			169	4/1
	Egyptian.	3			3
Syrian 124 144 20			144	20	1

9

SESSIONAL PAPER No. 25

Total Immigration by Nationalities, &c.—Concluded

	1910-11.	1911–12.	Increase.	Decrease.
Arabian U. S. A. citizens, via ocean ports. Negro Hindoo Mexican	3 203 12 5	2 143 138 3 3	126	
Total Continental, &c	66,620	82,406	15,786	
From the United States	121,451	133,710	12,259	
Total Immigration	311,084	354,237	43,153	

N.E.S.—Not elsewhere specified.

ARRIVALS AT OCEAN PORTS.

For the fiscal year 1911-12, there arrived via Canadian and United States ocean ports 314,150 passengers, of whom 23,241 travelled saloon and 290,909 steerage. Of the saloon passengers 19,704 were destined to Canada and 3,537 to the United States. Of the steerage passengers 266,469 were for Canada and 24,440 for the United States. Included in the steerage passengers for Canada were 38,711 returned Canadians and 7,231 tourists, leaving the immigration proper via ocean ports at 220,527 souls, which together with the 133,710 settlers from the United States, brings the total immigration to 354,237, an increase over the preceding fiscal year of 43,153 persons.

The following further statistical information will be of interest: Table I deals with the total arrivals of saloon passengers; Table II with the total arrivals of steerage passengers; Table III with the monthly arrivals of immigrants for Canada; and Tables IV and V give summaries of the information obtained from immigrants for Canada upon arrival.

TABLE I.

Passengers arriving at Ocean Ports for the Fisc.

NATIONALITY and Sex of Saloon Passengers arriving at Ocean Ports for the Fiscal Year ended March 31, 1912.

]				<u> </u>							
		Can	ADA.		ι	JNITED	STATE	s.	CAN	ADA A: Sta	ND UNI	TED
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.
African, South. Australian. Austrian, N.E.S. Bohemian Croatian. Magyar Belgian Chinese Dutch. French. German. English. Welsh Scotch. Irish. West Indian Bermudian Jamaican Greek. Hebrew, N.E.S. "Russian Italian. Japanese. Newfoundland. New Zealand. Portuguese. Polish, N.E.S. "Russian. Russian. Russian. Roumanian Russian. Spanish. Spanish. Syanish. Syanish. Syanish. Syanish. Syanian. U.S.A. Citizens. Negro Returned Canadian. Tourist.	2 144 137 644 1,331 23 440 139 22 44 14 14 2 35 5 5 1 1 1 1 1 3 3 4 4 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1	3 6 6 3 3 100 3 8 8 3 3 5 5 7 3 5 6 6 20 3 3 4 7 2 1 1 1 1 6 6 6 1 1 2 2 3 7 3 3 1 1 5 5 1 1 5 3 3 4 2 8 2 1 8 1 7 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	30 8 8 8 8 3 1 1 8 3 600 4 4 	66 211 11 11 32 9 18 242 242 29 673 194 51 23 24 25 55 12 21 101 11 2,223 194 51 194 4 4 59 112 112 113 117 117 118 119 119 119 119 119 119 119 119 119	21 161 147 166 1 	1 1 2 4 1,018 269	85	32 2777 1 98 32 1 1 	5,091 1,091 5,014 3,989	3 8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	66 266 15 1 1 33 9 222 2977 133 2,5000 300 7711 2226 522 88 244 666 612 12 815 12 11 13 19 19 10 11 14 22 22,291 11 11 11 11 11 11 11 11 11 11 11 11 1
Totals	11,373	7,144	1,187	19,704	1,749	1,637	151	3,537	13,122	8,781	1,338	23,241

TABLE II.

Nationality and Sex of Steerage Passengers arriving at Ocean Ports for the Fiscal Year ended March 31, 1912.

Tear chiefe Diaron 51, 1715.												
		Can	ADA.		Uı	VITED	Stat	ES.	Can.		ND UN	ITED
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.
African, South Australian Austrian, N.E.S Bohemian Bukowinian Croatian Dalmatian Galician Hungarian, N.E.S Magyar Ruthenian Slovak Belgian Bulgarian Chinese Dutch French German, N.E.S Alsatian Bavarian Prussian English Welsh Scotch Irish West Indian Bermudian	978	60 739 388 46 299 1 1 214 108 83 355 26 80 595 1,164 1 29,557 442 11,529 2,838 107	8 20,010 279 6,888	144 184 4,871 143 328 281 388 1,594 482 400 13,346 168 1,601 13,295 6,247 1,077 2,094 4,645 1 4 95,107 1,699 32,988 8,327 314	1,6899 57 472 11,54 20 11 48 28 9 139 76 45 59 96 172 106 31 279 		6 100 311 233 44 6 6 144 77 35 11 4 4 577 15 234 8622 34 5 5	10 53 277 59 2 61 2 20 230 100 66 71 118 4 229 72 739 	1,035	82 831 544 47 38 165 101 2,014 51 1377 27 27 27 27 27 27 27 31,390 	20,872 309 7,205	154 237 5,148 202 330 342 40 1,614 712 500 13,412 239 1,717 3,393 6,431 1,306 5,384 1 4 99,116 1,817 34,214 8,689 9
Jamaican Greek Hebrew, N.E.S "Russian Polish Austrian German Italian Japanese Newfoundland New Zealand	34 611 205 1,650 25 96 2 6,211 322 2,001 39	54 150 1,425 8 90 1 799 362 417 16	4 28 182 1,385 19 83 1 580 81 180 6	70 693 537 $4,460$ 52 269 $4,7,590$ 765 $2,598$ 61	9 42 471 6 21 1 678 5	58 529 2 8 6 431 2	45 574 1 5 3 	9 145 1,574 3 19 30 1 1,161 9	$\begin{array}{c} 34 \\ 620 \\ 247 \\ 2,121 \\ 25 \\ 102 \\ 2 \\ 6,232 \\ 323 \\ 2,679 \\ 44 \end{array}$	32 54 208 1,954 10 98 1 805 362 848 18	28 227 1,959 20 88 1 583 81 232 8	70 702 682 6,034 55 288 4 7,620 766 3,759 70
Portuguese Polish, N.E.S. " Austrian " German " Russian Persian Roumanian Russian, N.E.S. Finnish Doukhobor Spanish Swiss	6 395 1,870 15 1,252 17 472 7,311 949 7 158 148	139 545 4 232 1 149 1,172 468 3 21 51	108 358 2 140 1 172 1,322 229 14 12 31	6 642 2.773 21 1,624 19 793 9,805 1,646 24 191 230	1 27 76 8 248 1 15 843 642 3.	29 94 10 148 1 14 376 564	15 32 11 64 16 242 281	1,487 3 30	7 422 1,946 23 1,500 18 487 8,154 1,591 7 161 166	168 639 14 380 2 163 1,548 1,032 3 21 62 18	123 390 13 204 1 188 1,564 510 14 12 32 10	7 713 2,975 50 2,084 21 838 11,266 3,133 24 194 260 233
Servian Danish Loelandic. Swedish. Norwegian. Turkish, N.E.S. Armenian Egyptian Syrian.	183 432 83 1,570 1,029 602 53	130 79 479 428 21 5	9 66 43 345 235 9 2	209 628 205 2,394 1,692 632 60 	$ \begin{array}{r} 20 \\ 266 \\ 5 \\ 890 \\ 1,651 \\ 33 \\ 4 \\ 1 \\ 12 \end{array} $	3 139 3 527 840 3 	102 1 272 273 2	24 507 9 1,689 2,764 38 4 1 20	205 698 88 2,460 2,680 635 57 1 82	18 269 82 1,006 1,268 24 5	10 168 44 617 508 11 2 	233 1,135 214 4,083 4,456 670 64 1

Nationality and Sex of Steerage Passengers arriving at Ocean Ports for the Fiscal Year ended March 31, 1912—Concluded.

		CAN	ADA.		U	NITED	Stat	ES.	Cana	ADA AN Sta		ITED
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.	Males,	Females.	Children.	Totals.
Arabian U. S. A. Citizens Negro Hindoo Mexican	1 59 37 2 1	1 51 91 1 2	33 10	138 3 3	1		,	1	37 3 1	91 1 2	10	138
Total immigration. Returned Canadian Tourist		9,337	4,216	38,711						9,337	4,216	38,711
Totals	153,800	69,120	43,549	266,469	11,861	8,458	4,121	24,440	165,661	77,578	47,670	290,909

TABLE III.

MONTHLY arrivals of Immigrants for Canada, by Nationalities, at Ocean Ports, for the Fiscal Year ended March 31, 1912.

	1												
	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals.
African, South	106 35			5	$\frac{4}{20}$	1 4	13		7	6	4	16	144
Austrian, N.E.S	2,185		288	618							-		184 4,871
Bohemian						15				2	1		143
Bukowinian	77	89 36		10		18 7	28 28			10		C. T	328 281
Dalmatian	1		2					8	3		6	15	38
Hungarian VES	818			92 65		36 11	22			$\frac{15}{24}$		23 121	1,594 482
Galician. Hungarian, N.E.S Magyar	39	45	37	11	23	41	15		56			53	400
Ruthenian	2,085	4,298 27	1,645	587 26	223	485			237	247	333		13,346
Slovak Belgian	271	350	97	105		126	19 99		-	35		32 258	$\frac{168}{1,601}$
Bulgarian	535	238		47	17	20				206	181	1,392	3,295
Chinese	523 257	844 204	753 113	997 67	519 77	659 73	300 45			222	122 19	270 166	6,247 $1,077$
French	262	481	209	243	126	172	188	92	81	37	113	150	2,094
German, N.E.S Alsatian	354	575	889	394	355	386	490	206	217	144	126	509	4,645
Bavarian	2											2	4
Prussian	11.704	90.000	10 901	0 150	e 451	0.101	0 =00	0.500	1 -00	1 050	11	2	14
English	246	20,060	218	8,158 143	6,451 85	$9,161 \\ 133$	97	2,736 41	1,033	1,078 22	2,207	10,072 268	95,107 $1,699$
Scotch	4,562	8,411	5,861	2,739	1,921	2,297	2,396	. 976	531	292	445	2,557	32,988
Irish	1,028 13		1,148	712 78	602	$\frac{718}{23}$	643		135	132	141	741	8,327
Bermudian	3		5									1	314
Jamaican	115	5 88	93	6 42	6 23	9 29	11 75	10 48	31	1 5	3	6	70
Greek. Hebrew, N.E.S	17	38	96	81	71	53	15		42	17	14 19	130 48	693 537
" Russian	232	296	469	617	361	686	281	353	286	329	218	332	4,460
Polish	11	1 10	$\frac{2}{19}$	17 45	19	46	7	16 53	19	10 16	2 17	7	52 269
" German			3									1	4
Italian Japanese Japa	2,119 49	1,659 96	527 92	199 78	230 71	$\frac{230}{66}$	231 130	261 48	264 20	209 19	256 30	$\frac{1,405}{66}$	7,590 765
Newfoundland	335	547	320	220	249	504	158	120	49	15	9	72	2,598
New Zealand	20	1	16	1 1	2	1	6	3	2	1	2	4	61
Portuguese Polish, N. E.S	106	145	144	23	34	17	$\frac{1}{37}$	31	11	21	2	72	$\begin{array}{c} 6 \\ 642 \end{array}$
" Austrian	489	483	180	212	55	152	115	98	68	140	214	567	2,773
Gernian	6 214	120	146	6 82	45	61	77	68	$\frac{1}{34}$	56	128	593	$\frac{21}{1,624}$
Persian	2	3		2		6		1		3		2	19
Roumanian	119 2,012	153 $1,570$	94 652	981	71 385	73 419	32 415	50 404	24 175	14 254	8 282	$\frac{108}{2,256}$	793 9,805
Finnish	185	229	219	158	114	159	116	89	122	43	94	118	1,646
Doukhobor	35	15	9	10	11								24
Spanish	24	65 39	3 35	19 33	11 6	29	6 17	29	9	2 3	1 5	28	191 230
Servian	7	27	14	4	5		37	29	38	7	13	28	209
Danish	85 3	111 40	42 35	56 64	33 22	60 17	27 14	33	11	5	20	145	$\frac{628}{205}$
Swedish	482	460	306	239	118	195	113	134	62	31	48	206	2,394
Norwegian Turkish	276 87	298 24	227 69	178 32	113 17	$\frac{175}{27}$	121 26	56 59	28	8	34	178	1,692
Armenian.	1	2	1	12	1	2	4	3	48 17	46	49 11	148	632
Syrian	2	3	35	21	10	9	5	17	26	9	3	4	144
Arabian	12	16	25	1 15	15	25	13	4	2	1	4	· · · · · · · · · · · · · · · · · · ·	$\begin{array}{c} 2 \\ 143 \end{array}$
Negro	4	18	45		39	18		9	5				138
Hindoo Mexican		1		1			1						3 3
												3	
Totals	35,283	46,060	27,973	18,609	13,096	17,593	13,646	7,946	4,945	3,848	5,389	26,139	220,527
									-				

TABLE IV

MONTHLY arrivals of Immigrants for Canada, by Occupation and Destination, at Ocean Ports, for the Fiscal Year ended March 31, 1912.

				,		,	,						
_	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals.
Agriculturists General labourers. Mechanics Clerks, traders, &c. Miners Female servants	11, 396 2,039 1,565 473	12, 855 4,765 2,561 785	7,410	$\frac{4,682}{1,902}$	3,448 $1,972$	3,720 5,126 2,965 1,445 537 1,897	3,864 $2,184$	2,110 1,005 1,005 241	1,725 537	1,165 425	1,786 642 300 141	3,029 1,112 373	61,752 24,133 14,158 4,348
Not classified	4,799 35, 283	5,302	3,995 27, 973	2,490 18,609	1,526 13,096	1,903 17,593	1,370 13,646	855 7, 946	544 4, 945	3,848	549 5, 389	$\frac{1,126}{26,139}$	$ \begin{array}{r} 24,918 \\ -220,527 \\ \end{array} $
Quebec	4,849 12,598 6,365 2,880 2,817	8,205 15,835 7,699 3,486 3,743	4,151 9,586 4,126 2,570 2,432	2,767 6,700 2,888 1,527 1,450	2,130 4,756 1,656 1,092 974	2,925 6,234 2,216 1,229 1,328	2,388 5,211 1,457 998 928	1,398 2,650 846 540 568	871 1,944 508 243 314	$755 \\ 1,414 \\ 421 \\ 243 \\ 264$	865 2, 166 598 400 427	3,572 9,759 3,883 2,937 2,201	34,876 78,853 32,663 18,145 17,386
British Columbia Yukon Totals		5,855 2 46,060	,2	1	7					3,848	1		$ \begin{array}{r} 28,958 \\ 13 \\ \hline 220,527 \end{array} $

3 GEORGE V., A. 1913 ${\rm TABLE}$ Nationality, Sex, Occupation and Destination of Immigrant Arrivals,

												m	
												TRAI	DE OR
		SE	X.			rmers a Labou Class.			enera		Med	hanic	s.
		[ė				ď		zô	ď			ď
	ø.	Females	Children	ls.	or C	Females	Children	20	Females.	Children	.88	Females	Children
	Males.	em	hij	Totals.	Males.	em	Shij	Males.	em	Shii	Males.	èm	Shij
African, South	26 94	108 60	10 30	144 184	16 16	₅	$\frac{1}{7}$	17 16	3		1 16	····i	1
Austrian, N.E.S.	3,588	739	544	4,871	2,176	381	390	1.339	155		23	8	9
Bohemian	$\begin{array}{r} 54 \\ 254 \end{array}$	38 46	51 28	143 328	26 121	13 15	$\frac{27}{22}$	$\frac{14}{129}$	7 9	9 6	2	$\frac{1}{1}$	1
Croatian	244	29	8	281	122	4	3	112	6	2	4		
Dalmatian	31 1,233	$\frac{1}{214}$	$\frac{6}{147}$	38 1,594	$\frac{24}{514}$	84	109	$\frac{7}{710}$	$\frac{1}{31}$	$\frac{6}{24}$		4	6
Hungarian	307	108	67	482	188	48	43	98	22		6		
Magyar Ruthenian	$\frac{218}{10,039}$	1,988	1,319	400 13,346	$\frac{137}{6,083}$	36 909	$\frac{62}{971}$	59 3,914	$\frac{19}{259}$		7 13	1 14	11
Slovak	120	32	16 299	168 1,601	51 540	7 127	$\frac{7}{132}$	62 173	6 50			 42	43
Belgian Bulgarian	$947 \\ 3,252$	355 26	17	3,295	1,082	6	9	2,145	14		84	2	1
Chinese	3,252 5,776 572	80 269	391 236	6,247 $1,077$	49 300	103	130	1,338 108	$\frac{6}{30}$		8 87	····31	30
Dutch	1,181	595	318	2,094	634	181	188	182	45	46	112	42	16
German, N.E.S Alsatian.	2,075 1	1,164	1,406	4,645 1	1,288	636	1,064	309	99	155	191	59	61
Bavarian	4			4	2							• • • • •	
Prussian English	5 45 540	29,557	20,010	95.107	18, 845	5,277	5.809	11,218	5.559	5.432	7,122	3.843	3.663
Welsh	978	442	279	1,699	416	66	76	181	58	63	136	47	47
Scotch	14,571 4,384	11,529 2,838	6,888 1,105	32,988 $8,327$	5,001 2,024	1,171 305	1,462 309		$\frac{1,600}{373}$		2,435	1,263 158	
West Indian	193	107	14	314	11		1	104	3		35	3	
Bermudian	3 34	$\frac{6}{32}$	4	$\begin{array}{c} 9 \\ 70 \end{array}$	1	1		11	1		4	3	
Greek	611	54 150	28 182	693 537	131 18	9 2	3		23 21	$\frac{10}{29}$	8 48	1 33	37
Hebrew, N.E.S Russian	$\frac{205}{1,650}$	1,425	1,385	4,460			73	409	191	271	536	140	402
Polish Austrian .	25 96	8. 90	$\frac{19}{83}$	$\begin{array}{c} 52 \\ 269 \end{array}$	$\frac{1}{9}$	* * * * *	·····i	$\frac{2}{26}$	13	$\frac{2}{24}$	4	$\frac{1}{23}$	3 17
" German	2	1	1	4							1		
Italian Japanese	$6,211 \\ 322$	799 362	580 81	7,590 765		124 21	$\frac{108}{1}$	4,473 118	401 87	333 15	118 10	23 6	12
Newfoundland	2,001	417	180	2,598	2			1,809	169		72	8	17
New Zealand Portuguese	$\frac{39}{6}$	16	6	61	12	2	4	8 5			6	1	
Polish, N.E.S.	395	139	108	642	183	33	$\frac{39}{200}$		18 87	30 111	$\frac{6}{27}$	8	5 3
" Austrian	1,870 15	545 4	358	2,773 21	1,075 11	173	1	4	1	1	46		1
" Russian Persian	1,252 17	232	140	1,624 19	774	61	46	422	66	56	30	8	7
Roumanian	472	149	172	793	248	60	107	199	31	39	11	2	3
Russian, N.E.S Finnish	7,311 949	1,172 468	1,322 229	9,805 1,646	3,144	646	969 57	3,955 604	186 86		$\frac{98}{32}$	33 9	37
Doukhobor	7	3	14	24	7	3	14						
Spanish	158 148	21 51	12 31	$\frac{191}{230}$	44 70	16	15	77 35	1	5	14	4	5
Servian	185	15	9 66	$\frac{209}{628}$	52 251	4 35	41	131 107	5			9	$\frac{\cdots}{2}$
Danish	432 83	130 79	43	205	48	25	25	12	5	9	9	3	2
Swedish	1,570 $1,029$	$\begin{array}{r} 479 \\ 428 \end{array}$	345 235	2,394 $1,692$		$\frac{125}{90}$	$184 \\ 94$		75 65		64 60	$\frac{23}{17}$	26 28
Norwegian Turkish	602	21	9	632	188			396	7	4	5	2	2
Armenian Syrian	53 70	5 38	$\frac{2}{36}$	$\frac{60}{144}$		4	5	16 13	7	6	$\frac{3}{7}$	1	$\begin{vmatrix} 2\\2 \end{vmatrix}$
Arabian	1	1		2				1	,				
U.S.A. Citizens Negro	59 37	51 91	33 10	143 138		5	2	12 21	$\begin{bmatrix} 4\\ 2 \end{bmatrix}$		• 7	5 1	10
Hindoo	2	$\frac{1}{2}$		3				1					
Mexican	1										1	1	
Totals	123,610	57, 895	39, 022	220,527	49,095	10, 917	12,816	41,894	9,919	9,939	11,885	6,190	6,058

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m V.}$

for Canada, at Ocean Ports, for the Fiscal Year ended March 31, 1912.

Occu	PATIC	N.										D	ESTINA	TION.			
	Clerks ders,		М	iner	s.	vants.	Not (Classî	fied.					an.		umbia.	ritory.
Males.	Females.	Children.	Males.	Females.	Children.	Female Servants.	Males.	Females.	Children.	Maritime Provinces.	Quebec.	Ontario.	Manitoba.	Saskatchewan.	'Alberta.	British Columbia.	Yukon Territory.
3 8 14 2 2	1 7 4	1 4	8 14 4 1 5	 8 4	4 17 9	102 9 164 7 16 14	30 22 6 1	5 33 19 6 5 4	8 14 23 5	3 3 207 18 6 1	109 16 1,060 11 132 28	18 21 1,164 8 38 179	1,442 18 64 13	58 66	5 10 310 23 16 10	122 98 7 6	
1 7 1 2 25	2	4	4 4 12 14 7 72 2	1 6 2 37	1 6 2 47	85 28 8 771 15 51	2 4 2 13	9 10 19 27 2 38	7 4 21 39	39 15 35 220 2 169	1 414 31 19 3,666 8 431	34 351 194 131 2,692 67 80	3 566 86 88 4,215 29 487	135 108 96 1,371 3 174	69 21 27 1,014 28 194	27 4 168	3
3 4,193 26 44 117	10 1 37 7 20 22	136 4 5 17	2 40 52	1 1 17 10	1 3 16 28	2 2 2 55 102 231	5 188 49 169 118	35 42 188 107	243 37 47 81	168 23 40 176 97	799 315 125 907 384	2,278 355 252 168 441	22 46 245 354 1,125	13 11 115 200 1,480	7 17 213 205 977	5,480 87	1
1 2,666 54 1,349 529 20	1 1,448 18 663 218 4	8 1,018 18 441 93	1,105 108 562 45	$\begin{array}{c} 14 \\ 209 \end{array}$	475 29 350 16	8,385 169 4,807 1,309 88	1 4,584 83 1,820 439 19	70	46	54	167	41,536 449 11,600 3,516 67	11, 183 381 5,225 1,504 5	7,875 120 2,217 481	7,973 237 3,032 540		7
1 6 12 40 128 5	1 3 16 84 2 6	5 25 103 9	1 1 1	2	i	5 22 7 14 118	11 12 14 51 484 13	1 4 11 64 544 4 39	4 10 87 535 5 29	5 4 12 14 97	10 236 254 1,442 2 131	2 49 351 169 1,777 41 109	1 8 52 889 2 24	1 1 18 112	6 20 95		1
13 32 123 7 4	11 13 6	12 5 5	129 45	9	9	107 13 131 4	27 1 64 41 66 9	1 124 222 103 9	1 113 60 78 2	223 2,299 2 2	2,684 109 6	3,368 1 116 3	1 211 15 2	14	244 1 14 10	846 763 45 37	1
2	3	4	26 21 12	8 8 	13 13 4	51 236 2 70	3 14 12	21 34 23	21 27 27	31 84 73	150 491 388	136 610 16 898	212 1,009 3 129	77 275 1 68	29 262 1 35	42	
3 18 5	1 11 4	1 7 2	44 64	7 20	6 26	26 193 277	11 52 10	1 29 96 18	22 90 32	9 858 2	1 355 1,904 154	18 116 2,460 1,173	30 1,853 40	245 1,218 48 24	28 763 71	10 749 158	
4 8 1 13	1 1 3 2		22 1 4	1 3	1 5	6 22 4 59 33	7 20 24 13	6 7 1 14 11	6 10 4 12 5	36 8	78 68 4 103 2	54 43 181 114	13 25 4 149 173	26 16 86 16	43 1 110	14	
11 10 8 6 16	5 1 1 12	9	27 16	5	10 6 	228 223 3 6	27 68 5 1 5	21 23 5 3 8	30 23 5 	26 43 9 2 32	186 172 57 13 62	490 210 558 42 37	445 251 1 1 3	392 354 1	353 352 3	502 309 6 2	1
6 4 1	4		2	1	3	17 84	17 8	1 15 4 1 1	15 7	8 39	24 73 1	42 25	8	5	13	43 1 1	
9,560	2,655	1,943	2,482	763	1,103	18,390	8,694	9,061	7,163	9,633	34,876	78, 853	32, 663	18, 145	17, 386	38, 958	13

PORT OF NORTH SYDNEY.

For the fiscal year 1911-12, there arrived at the port of North Sydney 9,663 passengers, of whom 3,512 travelled saloon and 6,151 steerage. Of the saloon passengers 2,499 were destined to Canada and 1,013 to the United States. Of the steerage passengers 4,890 were for Canada and 1,261 for the United States. Included in the steerage passengers for Canada were 1,144 returned Canadians and 901 tourists, leaving the immigration proper at 2,845 souls, an increase as compared with the preceding fiscal year of 127 persons.

Table I deals with the total arrivals of saloon passengers, Table II with the total arrivals of steerage passengers, Table III with the monthly arrivals of immigrants for Canada, and Tables IV and V give summaries of the information obtained from immigrants for Canada upon arrival.

TABLE I.

Nationality and Sex of Saloon Passengers arriving at the Port of North Sydney, for the Fiscal Year ended March 31, 1912.

		CANA	ADA.		U	NITED	STATE	s.	Cana	ADA AN STA'	D UNI	TED
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.
Austrian French. German English. Welsh Scotch. Irish. Greek Italian Newfoundland Portuguese Russian Spanish Swiss. Swedish Norwegian Syrian. U.S. A. Citizens. Canadian Tourist	45 47 22 12 250 2 1 250 1 43 766 393 1,539	206	16 1 	101 59 2 17 3 1 535 2 1 1 4 1,138 621 2,499	1 188 4 16 16 11 11 11 11 11 11 11 11 11 11 11	11 136 136 125 329	8 8 27	258 1 34 16 2 4 1 1 3 3 1 374 3 1,013	1 63 4 4 63 2 13 6 6 1 1 2 2 1 1 3 3 4 1 1 2 2 7 6 6 7 7 7 6 7 7 7 7 7 7 7 7 7 7 7	331	21 1 65 65 	1 1355 4 75 2 19 7 1 1 793 1 2 1 1 3 1 5 3 88 1,138 934 3,512

TABLE II.

NATIONALITY and Sex of Steerage Passengers arriving at the Port of North Sydney, for the fiscal Year ended March 31, 1912.

		CAN	ADA.		U	NITED	STATE	s.	CAN	ADA AL	ND UNI	ITED
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.
French. English. Scotch Irish West Indian Italian Newfoundland Portuguese Russian, N.E.S Finnish Spanish Swiss. Swedish Norwegian Armenian Syrian U.S.A. Citizens.	60 21 4 2 89 1,993 2 1 19 1 3 1 5 2	17 2 1 5 413	173	103 23 5 2 94 2,579 2 11 19	13	429	51	3 13 1 1 1,148 1 1,148 1 1 1 1 1 4 35	622 34 5 3 89 1 2,661 1 19 1 2 4 1 6 27	18 2 1 1 5 8422	224 	106 36 6 3 94 1 3,727 21 1 1 19 1 2 4 2 9 41
Total immigration Returned Canadian Tourist	2,203 863 784	441 234 112	201 47 5	2,845 1,144 901	716	435 28	59	1,210	2,919 863 804	876 234 140	260 47 8	4,055 1,144 952
Totals	3,850	787	253	4,890	736	463	62	1,261	4,586	1,250	315	6,151

TABLE III.

MONTHLY Arrivals of Immigrants for Canada, by Nationalities, at the Port of North Sydney, for the Fiscal Year ended March 31, 1912.

								1				}	ı
	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals
									ļ				
French	1	8	9	28	3	17	21	11	4			1	103
English	1		1	7	2	5	3			1		3	23
Scotch	1	4		9									9
West Indian		11							1				94
Newfoundland.	335	547		219									2,579
Portuguese				1.		1	1						1
Spanish													19
Swedish				1									1
Norwegian									2				2
Syrian			3										5
U.S.A. Citizens				6				• • • • •					
Totals	360	570	380	269	274	527	183	131	53	16	9	73	2,845
200010111	13.70	0,0	000				200						,

TABLE IV.

MONTHLY Arrivals of Immigrants for Canada, by Occupation and Destination, at the Port of North Sydney, for the Fiscal Year ended March 31, 1912.

	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals
Agriculturists				1				,	2				5
General labourers.				238	187	426		69		12	8	66	2,23
Mechanics	19	6		12	26	16		17	2			4	119
Clerks, traders &c.	5 59	4	3	1	3 5	******	2	1	2				21
Miners Female servants.	15	22	12	10	14	31	16	12	4	2		3	69 142
Not classified	49	9		7	39	53	45	32	6	2		•	257
Totals	360	570	380	269	274	527	183	131	53	16	9	73	2,845
Maritime Prov	304	526	350	244	242	480	154	111	38	10	5	68	2,533
Quebec	15	13	11	5	12	44	15	4		2	1	001	12-
Ontario	19	27	12	19	8	1	11	9	$\frac{2}{2}$	ī		3	11:
Manitoba	2	1			9		1		2				15
Saskatchewan	6					,		,					
Alberta British Columbia.	14	3	6	1	2	1	2	5 2	9	3	3	2	17 43
Dittion Columbia.	1.4			1		1							46
Totals	360	570	380	269	274	527	183	131	53	16	9	73	2,843
													,

3 GEORGE V., A. 1913 TABLE

NATIONALITY, Sex, Occupation and Destination of Immigrant Arrivals for Canada,

												TRAD	Е ОК
-		SE	X.			rmers om Labo Class.		Gener	al Labo	ourers.	Med	chanics	
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Males.	Females.	Children.	Males.	Females.	Children.
French English Scotch Irish West Indian. Newfoundland Portuguese. Finnish Spanish Swedish. Norwegian Armenian. Syrian. U.S.A. Citizens.	60 21 4 2 89 1,993 2 1 19 1 3 1 5 2	17 2 1 5 413 1	173	103 23 5 94 2,579 2 1 19 13 3 2 5 6	2			52 14 1 1 2 73 1,806 2 1 1 		79	5 4 1 11 71	8	17
Totals	2,203	441	201	2,845	3			1,959	176	99	92	10	17

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V.

at the Port of North Sydney, for the Fiscal Year ended March 31, 1912.

Occui	PATIC	N.										DES	STINATI	ON.		
C	lerks lers,	, &с.	l n	dine	rs.	vants.	Not	t Classi	fied.	inces.				an.		ımbia.
Males.	Females.	Children.	Males,	Females.	Children.	Female Servants.	Males.	Females.	Children.	Maritime Provinces.	Quebec.	Ontario.	Manitoba.	Saskatchewan.	Alberta.	British Columbia
2 7	6		3 45		2	5 131	62	100	75	94 20 2 2 94 2,284 1 1 19 1 3 2 3 6	9 3 109 1	112	15		3	45
14	7		67			142	68	106	83	2,532	124	112	15		17	45

PORT OF HALIFAX.

For the fiscal year 1911-12, there arrived at the port of Halifax 48,397 passengers, of whom 3,216 travelled saloon and 45,181 steerage. Of the saloon passengers, 3,144 were destined to Canada and 72 to the United States. Of the steerage passengers, 41,171 were for Canada and 4,010 for the United States. Included in the steerage passengers for Canada were 5,926 returned Canadians and 371 tourists, leaving the immigration proper at 34,874 souls, an increase as compared with the preceding fiscal year of 1,216 persons.

Table I deals with the total arrivals of saloon passengers, Table II with the total arrivals of steerage passengers, Table III with the monthly arrivals of immigrants for Canada, and Tables IV and V give summaries of the information obtained from immigrants for Canada upon arrival.

TABLE I.

NATIONALITY and Sex of Saloon Passengers arriving at the Port of Halifax, for the Fiscal Year ended March 31, 1912.

			-									
		Can	ADA.		τ	JNITED	STATE	s.	CAN	ADA AI Sta	ND UNI	TED
_	Males.	Females.	Children.	Totals.	Males,	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.
Australian. Austrian, N.E.S. Croatian. Belgian French German English Welsh Scotch. Irish. West Indian Bernudian Jamaican Hebrew, N.E.S Italian Newfoundland Portuguese Polish, Russian. Danish. Norwegian U.S.A. Citizens Negro. Canadian Tourist.	2 2 2 1 3 5 4 4 214 2 7 6 39 8 8 2 3 1 1 8 1 1 1 2 1 6 6 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 2 82 11 15 66 111 4 2 2 2 1 1 9	1 20 3 4 4 4 3 3 1 70 77 183	2 3 1 3 7 6 6 3 3 9 4 4 9 2 3 6 5 5 3 1 1 2 0 1 1 1 2 2 2 1 1 0 3 1 1 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	2	11 3 11	7	1 2 14 2 2 14 3 3 6 3 6 3 11 72	2 2 2 3 3 5 4 4 2233 2 7 8 8 411 8 2 2 10 11 24 627 934 1,977	1 1 3 85 85 11 1 16 6 6 6 11 1 4 4 2 2 1 1 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 222 3 4 4 4 3 3 8 70 78 —————————————————————————————————	2 3 1 3 7 8 330 97 51 23 6 6 6 5 4 4 1 22 2 2 3 1 1,003 1,590 3,216

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TABLE II.

NATIONALITY and Sex of Steerage Pasesngers arriving at the Port of Halifax, for the Fiscal Year ended March 31, 1912.

		Can	ADA.		Ţ	NITED	STATE	s.	CAN	ADA A Sta		11 ED
_	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.	Males.	Females.	Čhildren.	Totals.
		-							-			
African, South. Australian. Austrian, N.E.S. Bohemian Bukowinian Croatian. Dalmatian. Galician.	9 8 436	79 1 5 64	111 2 5	544	48 9 39 2	21 6 1	9 12		6 335 9 9 47 2	100 7 6 7	120 14 5 4	30 20 58 2
Hungarian, N.E.S. Magyar Ruthenian Slovak Belgian Bulgarian Chinese	19 14 464 8 159 1,253	2 1 87 1 68 9	58 1 49 4		12 39 22	18 19 14 8	6 3 6	185 99 34 59 49 78	89 476 47 181	19 106 15 76 10	19 6 61 7 68 5	114 643 69 325
Dutch French German, N.E.S. Bavarian	139 62 173	52 45 72	31 22 71	222 129 316				58 8 244	170 65	69 50	41 22 125	280 137
English. Welsh Scotch Irish West Indian Bermudian	10,503 295 3,452 756 36 2	4,003 68 1,516 310 17	2,754 58 958 116	17,260 421 5,926 1,182 53 3	213 10 67 25 21	107 2 40 6 10	21	395 13 128 35 36	10,716 305 3,519 781	70	2,829 59 979 120 5	17,655 434 6,054
Jamaican Greel: Hebrew, N.E.S. Russian.	7 65 51 359	11 4 27 282	3 33 310	18 72 111 951	2 19 137	34 159	14 156	2 67 452	67 70	11 4 61	3 47 466	18 74 178
Polish Austrian Italian Newfoundland New Zealand	18 16 380 8	20 8 3 1	5 13 10 7	27 49 398 18 1	3 7 10 1	2 2	1	3 5 7 13 1	1		6 13 10 8	54 405 31 2
Portuguese	$\begin{array}{c} 1 \\ 22 \\ 90 \\ 1 \\ 70 \end{array}$	5 26 11	11 16 8	38 132 1 89	1 3 31 4 69	2 39 3 14	1 14 2 12	1 6 84 9 95	25 121 5 139	7 65 3 25	12 30 2 20	2 44 216 10 184
Persian Roumanian. Russian, N.E.S. Finnish. Spanish	2 17 2,812 186 9	8 103 61 5	10 94 19 6	35 3,009 266 20	11 461 136 2	7 75 68	8 49 21	26 585 225 2	28 3,273 322 11	15 178 129 5	18 143 40 6	2 61 3,594 491 22
Swiss Servian Danish Icelandic.	13 77 40 7		3 1	14 77 51 9	$\begin{array}{c} 1 \\ 20 \\ 38 \\ 1 \end{array}$	3 19	1 13	$\begin{array}{c} 1 \\ 24 \\ 70 \\ 1 \end{array}$	14 97 78 8	1 3 27 1	 1 16 1	15 101 121 10
Swedish. Norwegian. Turkish, N.E.S. Armenian	198 107 189 2	39 38 3	22 15 2	259 160 194 2	113 243 17	48 71	33 22 1	194 336 18	311 350 206 2	87 109 3	55 37 3	453 496 212 2
Syrian U.S.A. Citizens Negro Mexican	15 5 33 1	11 17 1	4	28 5 54 2	139	33	5	11 177	21 144 33 1	14 33 17 1	1 5 4	39 182 54 2
Total immigration Returned Canadian Tourist	22,896 4,169 245	7,100 1,112 102	4,878 645 24	34,874 5,926 371	2,401	990	605	3,996	25,297 4,169 252	8,090 1,112 106	5,483 645 27	38,870 5,926 385
Totals	27,310	8,314	5,547	41,171	2,408	994	608	4,010	29,718	9,308	6,155	45,181

TABLE III.

Monthly Arrivals of Immigrants for Canada, by Nationalities, at the Port of Halifax, for the Fiscal Year ended March 31, 1912.

											,		
	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals.
African, South	1				2	1		1					$\frac{5}{6}$
Australian	160	169		8		8			5	17	1	109	477
Austrian, N.E.S Bohemian	100	100		0	3				, ,	11	1	100	3
Bukowinian			3		3				2				19
Croatian									$ $ $\bar{2}$			6	8
Galician	382	27	52		13	30			19	2	7	12	544
Hungarian, N.E.S	3	1	1					1	6		8	1	21
Magyar		2			2			1		8	1	1	15
Ruthenian		235	58	81	13	16	41	34	6	21	43		609
Slovak				1			;	10	$\frac{1}{26}$	2		3	$\begin{array}{c} 10 \\ 276 \end{array}$
Belgian	56	32	$\frac{11}{9}$	5 5		8	41	10 56		13 138		87 569	1,266
Bulgarian	83	$\frac{69}{1}$	9	3	1	0	41	1	1/1	2	1	4	9
Chinese	76	10	$\ddot{2}$		1	5		21	11	ĩ	7	89	222
French	17	4		4			1	14	18	11	17	43	129
French	31	28	17	6	6	7	$\frac{1}{4}$	11	66	18			316
Bavarian												1	1
English	6,822	1,004	407	93			172	311	887	641	1,060	5,481	17,260
Welsh	130	24	10		3		7	2	28	8		191	421
Scotch	2,870	374	211	28			30	160	372	160		1,364	5,926
Irish	462	90	62	2	7	6	9	18	58	52	53	363	1,182
West Indian	3	8		22		11	4			1		4	53 3
Bermudian	3	b		$\frac{1}{2}$		1	····i	4	• • • •			• • •	18
Jamaican Greek	15	3	3		4	1	$\frac{1}{2}$	3	14	4	11	10	72
Hebrew, N.E.S	11			4	9	10	4	4	8	12			111
" Russian.	76	42	72	32			$2\hat{6}$	80	169	92	88	164	951
Polish		1		16				4		4	2		27
" Austrian.	2	2	5	1	4	6		7	6		12	4	49
Italian	50	224	25	31				2	13	16	13	24	348
Newfoundland			2		10				3			3	18
New Zealand								1					1
Portuguese									6		1		$\frac{1}{38}$
Polish, N.E.S	8	1 36	6	1		9		1 5	10	$\frac{4}{19}$	$\begin{vmatrix} 1\\30 \end{vmatrix}$	$\frac{6}{22}$	132
4 Austrian	1	30	U	1	ت ا			"	10	1.0	30	ت ت	1
Russian	16	6	9	$ \cdots _2$	6	2	1	2	4	4	7	30	89
Persian				.								2	2
Roumanian	16	7	4		4				2		1	1	35
Russian, N.E.S	618	453	75	42	70	95	83	57	76	38	124	1,278	3,009
Finnish	70	3	1						68	34	35	55	266
Spanish	7	5		4				1	3				20
Swiss	8	10	1						1		2	2	14
Servian	3	16 1	1		2			10	37	3	1	8 37	77 51
Danish Icelandic	3	1							3	Ð	1	2	9
Swedish	147	1				1		14	28	13		41	259
Norwegian	56							1	21	1	13	68	160
Turkish, N.E.S	3					4	14	25	22	14	6	106	194
Armenian									2				2
Syrian			4			1	1	13		1		2	28
U.S.A. Citizens	2		· · · · <u>·</u>						1			2	5
Negro	4	18	7		12			8	5				$\frac{54}{2}$
Mexican	• • • • • •											2	Z
Totals	12,229	2.905	1,058	402	411	624	445	883	2,190	1,354	1,980	10,393	34,874
200001111111	10,200	_,000	_, 000			001	- 20	030	2,100	2,001	2,000	,,,,,,,,	,-,-

TABLE IV.

MONTHLY Arrivals of Immigrants for Canada, by Occupation and Destination, at the Port of Halifax, for the Fiscal Year ended March 31, 1912.

	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals.
4 1 1 1	~ 000	790	012	66	79	113	46	134	399	252	151	3,800	11 909
Agriculturists	5,006		215		112				877	560	454 669		11,303
General labourers	2,919		255	144					316	166	264	3,411	$\frac{11,012}{3,863}$
Mechanics	899		68 31	10		30	54 5	55	131	73	116	391	
Clerks, traders, &c.	485			85			68	77	78	58	62	$\frac{331}{216}$	1,450 $1,267$
Miners	225			21	22		26	87	251	134	225	592	
Female servants	719		328		10		13	109	138	111	190	472	3,657
Not classified	1,976	204	323	1 50	10	10	19	103	190	111	130	4/2	5,057
Totals	12,229	2,905	1,058	402	411	624	445	883	2,190	1,354	1,980	10,393	34,874
Maritime Provinces	679	458	479	203	272	355	286	299	251	152	190		4,354
Quebec	1,081	535	125	31	20	44	57	92	326	188	245	976	3,720
Ontario	4,794	966	228	98	75	120	52	299	950	658	879	4,048	13,167
Manitoba	2,089		99	40	22	67	20	94	234	141	241	1,566	
Saskatchewan	1,054	144	35	9	10		4	26	85	36	154	1,316	2,885
Alberta	1,043	163	18	17	8	13	16	41	127	79	124	937	2,586
British Columbia	1,489		74	4	4	13	10	32	217	100	147	820	3,138
Totals	12,229	2,905	1,058	402	411	624	445	883	2,190	1,354	1,980	10,393	34,874

TABLE NATIONALITY, Sex, Occupation and Destination of Immigrant Arrivals for

	1				[
		4.5										TRAL	E OR
_		51	EX.			Farm o Farmer ourers (Genera	al Lab	ourers.	Med	chanic	es.
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Males.	Females.	Children.	Males.	Females.	Children.
African, South. Australian. Austrain, N.E.S. Bohemian Bukowinian. Croatian. Galician. Hungarian, N.E.S. Magyar Ruthenian. Slovak. Belgian. Bulgarian. Chinese. Dutch. French German, N.E.S. Bavarian. English. Welsh. Scotch. Irish. West Indian. Bermudian. Jamaican. Greek. Hebrew, N.E.S. Russian. Polish. Austrian. Italian Newfoundland New Zealand Portuguese Polish, N.E.S. "Austrian. "German Russian, Persian. Russian, Russian. Russian, Russian. Russian, Russian. Russian, N.E.S. Finnish. Spanish Swiss. Servian.	#W	1 79 1 5 5 2 1 6 8 8 9 52 4 5 4 5	111 2 5 44 	5 6 4777 8 199 8 5444 211 15 6099 100 2766 1,266 9 2222 129 316 421 5,926 1,182 533 18 722 111	1 1 70 	21 1 1 1 1 15 21 21 2 21 2 11	\$66 \$34 \$4 \$15 \$15 \$15 \$15 \$15 \$15 \$15 \$15 \$15 \$15	2 1 209 4 5 323 38 8 27 1,156 6 6 6 10 71 2 2 3 350 3 350 3 3 3 3 3 3 3 3 3 3 3 3 3 3	31 28 14 10 3 3 583 10 188 21 23 33 11 12 33 31 11 11 11 11 11 11 11 11	13 3 4	12 2 2 5 5	1 2 5 2 2 4229 101 111 102 144 22 155 145 145 145 155 165 165 165 165 165 165 16	5 7 1
Danish Icelandic. Swedish Norwegian. Turkish, N.E.S. Armenian Syrian. U.S.A. Citizens.	40 7 198 107 189 2 15 5	8 1 39 38 38 31	$\begin{array}{c} 3 \\ 1 \\ 22 \\ 15 \\ 2 \\ \end{array}$	51 9 259 160 194 2 28 5	30 2 109 78 5 2 5	3 15 4 1	1 12 4	72 19 181 4	1 6 3 2 2	7 9 2	4 4 9 8 1	1 3	1 2
Negro	33	17	4	54				20	2		i	1	3
Mexican	1	1	4.070	. 2	0.005	1 5 7	1 500	0.000	1.046	1.049	1		
Totals	22,896	7,100	4,878	34,874	8,031	1,510	1,762	8,929	1,040	1,043	2,409	769	685

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Canada, at the Port of Halifax, for the Fiscal Year ended March 31, 1912.

OCCUPATION.								DE	STINAT	ION.		
Clerks, Traders, &c.	Miners.	servants,	Not	Classi	fied.	ces.				van.		umbia.
	Males. Females.	Female se	Males.	Females.	Children.	Maritime Provinces.	Quebec.	Ontario.	Manitoba.	Saskatchewan.	Alberta.	British Columbia
12 1 33 191 25 122 14 1	1 1 1 1 2 2 1 1 2 2 1 1 3 1 3 3 3 3 3 3	9 169 13 1 19 1 4 1 6 1 16 1 18 1 19 1 16 1 16 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	33 1 1 1 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	100 633 5 3 3 3 3 1 1 1 2 2 1 1 1 1 1 2 1 1 2 1 1 1 1	388 3883 11 19 14 366 37 62 2,115 29 7100 1000 300 11 44 5 11 20 23 30 11 12 14 20 23 15 16 16 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	75 2 128 6 145 353 303 6 4 35 21 956 20 445 113 10 6 29 37 198 30 33 740 41 5 24 2 3 3 8 1 1 6	86 2 3 3 1133 8 7 1200 5 11 8 722 11 6 6 5 1,836 4 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 127	1,762 24 461 95 5 5 5 1 1 1 4 9 122 2 8 22 36	2 21	2 20 1 1 1 1
964 300 186 7	00 228 33	3 2,322	1,863	931	863	4,354	3,720	13,167	5, 024	2,885	2,586	3,138

PORT OF ST. JOHN.

For the fiscal year 1911-12, there arrived at the port of St. John 33,576 passengers, of whom 1,247 travelled saloon and 32,329 steerage. Of the saloon passengers 1,188 were destined to Canada and 59 to the United States. Of the steerage passengers 30,355 were for Canada and 1,974 for the United States. Included in the steerage passengers for Canada were 4,438 returned Canadians and 145 tourists, leaving the immigration proper at 25,772 souls, an increase as compared with the preceding fiscal year of 3,331 persons.

Table I deals with the total arrivals of saloon passengers; Table II with the total arrivals of steerage passengers; Table III with the monthly arrivals of immigrants for Canada, and Tables IV and V give summaries of the information obtained from immigrants for Canada upon arrival.

TABLE I.

Nationality and Sex of Saloon Passengers arriving at the Port of St. John, for the Fiscal Year ended March 31, 1912.

		CAN	ADA.		U	NITED	STATES	5.	CAN	ADA A? Sta	ND UNI	TED
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.
Austrian Belgian. Dutch French. German English. Welsh Scotch Irish. West Indian Bermudian Jamaican Italian. New Zealand Roumanian. Russian. Danish. U. S. A. Citizens Canadian. Tourist.	22 44 11 129 25 9 22 21 1 1 1 1 1 1 354 195	2 61 9 3 1 1 1 	21 1 1 1 1 2 2 1 2 1 2 2 1 2 2 1 2	22 6 11 4 3 3 2111 3 3 5 13 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		13 6	1 1 2	1 1 1 1 5 2 2 2	2: 4 2: 4 2: 134 3 3 25 9 2: 11 1: 11 12 354 210	1 2 61 9 4 1 1 1 180 104	21 1 2 2 1 2 1 2 2 1 4 4 28	3 3 3 3 5 1 1 1 1 1 2 6 5 7 8 3 4
Total	737	358	93	1,188	34	21	4	59	771	379	97	1,24

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TABLE II.

NATIONALITY and Sex of Steerage Passengers arriving at the Port of St. John, for the Fiscal Year ended March 31, 1912.

									1			
		CAN	ADA.		τ	JNITED	State	s.	CAN	ADA AN Stat		TED
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.
African, South. Australian. Austrian, N. E. S Bohemian Bukowinian Croatian Dalmatian. Galician. Hungarian, N. E. S. Magyar Ruthenian Slovak. Belgian Bulgarian. Chinese. Dutch. French. German, N. E. S. Alsatian. Bavarian. Prussian English Welsh. Scotch. Irish. West Indian. Bermudian Greek. Hebrew, N. E. S. "Russian Polish, N. E. S. "Austrian. Italian. New Zealand. Polish, N. E. S. "Austrian. Russian Polish, N. E. S. "Austrian. Russian Polish, N. E. S. "Austrian. Russian Persian Roumanian Russian, N. E. S. "Finnish. Spanish Spanish Syniss Servian. Danish. Icelandic Swedish. Norwegian Turkish, N. E. S. Armenian Egyptian Syrian. U. S. A. Citizens Total immigration Returned Canadian. Tourist	3 1,7500 4 144 322 5 223 80 80 5 83 878 55 81 1188 213 4 4,111 90 1,629 471 11 313 16 206 11 11 116 865 11 401 11 117 6 22 1,109 127 6 28 20 64 11 11 127 127 127 127 127 127 127 127 1	279 4 133 37 18 10 6322 31 4 22 81 101 1 2,006 22 24 40 40 4 3 9 132 2 5 23 23 197 20 137,65 2 2 20 146 35 3 3 4 5,038 703	27 4 31 56 136 136 8 1,377 100 421 80 41 12 129 3 4 4 13 16 112 11 18 18 10 10 10 10 10 10 10 10 10 10	1 3 2,1588 2 2,1588 2 2,1588 2 2,1588 2 2,158 2 2,158 2 2,158 2 2,774 2,775 2 2,774 2,141 2 2,774 2,775 2 2,774 2,151 2,175 2 2 2,175 2 2 2,175 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	39 4 1 5 8 8 31 12 17 12 3 19 11 2 82 82 82 82 1 2 82 81 1 1 69 52 101 340 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 5 5 6 4 22 1 11 5 5 6 4 4 9 1 1 5 5 4 0 0 5 2 2 1 1 1 1 5 5 4 0 0 5 2 5 5 6 5 6 5 2 5 1 1 1 1 5 5 6 5 2 5 1 1 1 1 5 5 6 5 2 5 1 1 1 1 5 5 6 5 2 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7 6 11 31 31 356 356 36 36 36 36 36 36 36 36 36 36 36 36 36	249 4 50 222 8 236 11 1433 2 12 124 1435 155 155 17 17 18 20 20 20 20 20 20 20 20 20 20 20 20 20	3 1,7899 145 37 5228 88 27 3,485 555 93 191 232 4 4,223 1,656 485 30 11 31 125 5888 1 1 125 11 125 11 125 11 125 11 125 11 125 11 11 125 11 11 125 11 11 125 11 11 125 11 11 11 11 11 11 11 11 11 11 11 11 11	1	133 9 8 20 13 5 271 38 4 32 56 167 185 185 3 4 13 20 116 25 144 54 30 216 31 34 32 33 34 34	1 3 2,214 44 1666 399 55 2888 1244 4,389 133 172 2903 133 1266 2,824 797 766 55 43 37,743 37 1266 2,824 797 1,211 22 5988 47 77 1,211 1 211 1 446 638 142 1,499 350 8 47 723 181 1 446 638 162 30 1 199 31 27,726 4,438
Totals	$\frac{87}{21,028}$	5,782	$\frac{17}{3,545}$	$\frac{145}{30,355}$	$\frac{7}{1,127}$	- <u>11</u> 547	300	$\frac{20}{1,974}$	$\frac{94}{22,155}$	$\frac{52}{6,329}$	$\frac{19}{3,845}$	$\frac{165}{32,329}$
]						1]		J	

TABLE III.

Monthly Arrivals of Immigrants for Canada, by Nationalities, at the Port of St. John, for the Fiscal Year ended March 31, 1912.

—	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals.
African, South	1 2												1 3
Austrian, N.E.S	1,954								9	8	6	181	2,158
Bohemian	8							,		2	1		11
Bukowinian Croatian	77								1	4	$\frac{2}{3}$	81 21	$\frac{165}{32}$
Dalmatian											5	21	5
Galician	255									9	6	10	280
Hungarian, N.E.S	60								3	$\frac{2}{8}$	10	28	104
Magyar	1,966								148		245	$\frac{17}{1,825}$	$\frac{42}{4,377}$
Slovak	1											6	7
Belgian	77								7	16	16	25	141
Bulgarian	359	8		5	$\begin{vmatrix} \cdots \\ 28 \end{vmatrix}$				$\frac{76}{2}$	13	43 1	395	886 55
Dutch	107				20				1	3	1	25	134
French	141								34	14	83	53	325
German, N.E.S	182							7	38	39	28	156	450
Alsatian									1			·····i	$\frac{1}{3}$
Prussian											11	$\frac{1}{2}$	13
English	2,979		1		1	ļ		195	488	224	822	2,784	7,494
Welsh	1,261			4		;		13	11	7	12	50	122
Irish	387		. 4	1 4	1	4		152 16	89 37	36 20	173 59	$1,039 \\ 255$	2,774 775
West Iudian	8		15	5	$1\hat{2}$							200	68
Bermudian			5										5
Greek Hebrew, N.E.S	$\frac{16}{4}$							·····i	13	3		26 4	42 27
Russian	116							$\frac{1}{2}$	80	122	52		467
Polish			ļ							6			6
Italian	8							3	1	6	1	_1	20
New Zealand	261								1	10	$\frac{20}{1}$	l 57	349
Polish, N.E.S.	96							5	5	10		39	155
" Austrian	442							2	39	93	172	427	1,175
German	150								*****			1 120	1
Persian	158							1	16	39	96	139	455 1
Roumanian	69								13	1	1	46	130
Russian, N.E.S	665							2	25	81	100	499	1,372
Finnish	41							14	50 6	$\frac{9}{1}$	54	62	230
Swiss	14								4	$\frac{1}{2}$	2	$\frac{1}{22}$	8 44
Servian	4							1		5	3	10	23
Danish	22							5	3		4	57	91
Icelandic	139							11	16	5	21	$\frac{1}{121}$	$\frac{1}{313}$
Norwegian	103							17	5	1	14	70	210
Turkish, N.E.S	74								22	15	36	15	162
Armenian	1								13		10	5	29
Syrian U.S.A. Citizens	$\frac{1}{2}$	1						3	16		$\frac{2}{1}$	4	19 10
												- 4	
Totals	12,115	43	27	14	44	7		456	1,277	1,013	2,120	8,656	25,772
								}					

TABLE IV.

MONTHLY Arrival of Immigrants for Canada, by Occupation and Destination, at the Port of St. John, for the Fiscal Year ended March 31, 1912.

			-		-								
	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals.
Agriculturists General labourers Mechanics Clerks, traders, &c Miners Female servants	4,820 4,817 437 242 75 646	17 3 2 	5 3 14	4 5 5	2 3			97 106 79 28 26 76	391 340 163 53- 30 141	445 157 131, 26, 24, 94	634 682 264 80 65 188	1,252 ,942 295 107 580	7,396 2,019 728 327 1,763
Not classified	$\frac{1,078}{12,115}$	-	$\frac{5}{27}$	14		7		456	1,277	136	2,120	8,656	1,932 25,772
Maritime Provinces. Quebec	718 1,681 3,774 2,917 1,132 1,046 847	18 7 2 	14 3 9 1	5 4	9 31 4			52 32 156 50 35 44, 87	39 262 504 169 62 92 149	55 236 293 131 115 115 68	82 410 809 240 175 197 207	323 1,469 2,688 1,572 1,102 795 707	4,147 8,248 5 082 2,621
Totals	12,115	43	27	14	44	7		456	1,277	1,013	2,120	8,656	25,772

3 GEORGE V., A. 1913 TABLE

NATIONALITY, Sex, Occupation and Destination of Immigrant Arrivals for

African, South														
Farm Labourers General Labourers Mechanics Farm Labourers Class Farm Labourers Mechanics Farm Labourers General Labourers Mechanics Farm Labourers General Labourers Mechanics Farm Labourers General Labourers Mechanics Farm Labourers General Labourers Mechanics Farm Labourers General Labourers Mechanics Farm Labourers General Labourers Mechanics Farm Labourers General Labourers Mechanics Farm Labourers General Labourers Mechanics Farm Labourers General Labourers Mechanics Farm Labourers Farm			SEX	ζ.									TRADE	OR
African, South						Farm	Labou		Genera	l Labor	urers.	Mec	hanics.	
African, South		Males.	emules.	Children.	Fotals.	Males.	Females.	Children.	Males.	Females.	Children.	Males.	Females.	Children.
Australian				<u> </u>										
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Australian Austrian, N.E.S Bohemian Bukowinian Croatian Dalmatian Galician Hungarian, N.E.S Magyar Ruthenian Bulgarian Chinese Dutch French German, N.E.S Alsatian Bavarian Prussian English Welsh Scotch Irish West Indian Bermudian Greek Hebrew, N.E.S "Russian "Russian Talian New Zealand New Zealand Polish, N.E.S "Russian "Greek Hebrew, N.E.S "Russian "Greenan "Greek "German "German "German "German "German "German "Gersian "Russian	3 1,750 4 144 32 5 223 80 27 3,480 5 5 83 878 55 81 188 213 4 4,111 90 1,629 471 127 13 13 116 866 11 116 866 11 110 116 116 116 116 116 116 116 11	279 4 13 37 18 10 632 2 31 4 22 81 101 1 2,006 22 724 40 43 3 9 132 2 5 23 23 197 42 20 137 65	129 3 8 8 20 6 5 265 27 4 136 136 10 421 80 10 11 2 129 3 3 4 13 16 112 18 112 18 18	1 3 2,158 11 165 32 280 104 42 4,377 7 141 886 55 450 13 3 13 7,494 122 2,774 775 68 5 5 40 349 155 1,175 1 155 1,175 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1,107 1 84 24 53 64 53 15 2,023 4 53 413 40 136 152 2 1,962 32 595 180 1 1 1 2 30 1 1 1 2 30 1 1 2 53 1 1 2 53 55 654 27	123 6 9 6 3 175 8 2 13 41 65 40 3 40 50 6 6 8 7 7 5 6 6 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6	91 11 8 21 146 111 4 23 43 110 529 2 131 32 32 32 32 31 13 97	1 627 2 2 2 60 8 8	72 3 1 6 4 4 3 106 5 1 2 5 7 7 2 8 3 39 16 18 8 29	33 2 33 2 3 113 5 2 3 119 291 1 67 26 34 4 42 7	713 311 3713 311 374 4 661 14 66	2 1 1 3 2 2 1 6 4 4 255 2 65 19 36 1 2 1 1 2 1 1 1 1 2 1 1 1 1 1 1 1 1 1	33 1 2 234 1 72 9 30 3 3
Danish 64 20 7 91 28 4 5 30 1 4 3	Spanish	28	8	1	44	17 16			5 4			3		2
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Danish Icelandic Swedish Norwegian Turkish, N.E.S	229 164 159	20 1 46 35 3	7 38	91 313 210 162	28 75 63 82	6 7	····is	134 83 77		13 1		3 1 1	1
Syrian 13 3 3 19 7 1 2 4 1 1 1 1 U.S.A. Citizens 4 4 2 10 1 1 2 2 1 1	Syrian	13	3		19	7	i 1		4	1	1	1		
Totals $17,602$ 5,038 3,132 25,772 8,925 1,305 1,377 5,955 716 725 1,240 418	Totals	17,602	5,038	3,132	25,772	8,925	1,305	1,377	5,955	716	725	1,240	418	361

SESSIONAL PAPER No. 25

V.

ii

Canada, at the Port of St. John, for the Fiscal Year ended March 31, 1912.

Occu	PATIC	N.										Di	ESTINAT	ION.		
C	lerks ders,	, &c.	М	iners	;.	vants.	No	t Classi	fied.	ces.				an.	e e	ımbia.
Males.	Females.	Children.	Males.	Females.	Children.	Pemale Servants.	Males.	Females.	Children.	Maritime Provinces.	Quebec.	Ontario.	Manitoba.	Saskatchewan.	Alberta	British Columbia
2 3 35 22,776 611 1137 699 4 4177	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	S 57 17 4	1 1 73 1 73 1 73 1 73 1 73 1 74 3 3 3	1 1	1 36 5 20 · · · · · · · · · · · · · · · · · ·	78 11 3 77 3 344 1 7 1 1 1 1 1 1 1 1 1	2 1 1 2 2 2 2 1 1 6 9 9 1 5 5 0 0 5 0 0 5 0 0 5 0 0 0 5 0 0 0 0	1 3 3 2 2 3 3 1 1 3 3 2 9 2 2 6 0 0 2 3 3 1 7 7 7 7 1 2 2 1 2 1 2 1 2 1 2 1 2 1 2	33 44 55 66 55 230 1114 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	300 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	35 1 7 1,181	1 645 17 31 5 5 744 40 11 8788 6 6 5 5 5 3 177 44	630 630 117 9 64 1,426 61 44 44 476 61 21 497 201 3 3 40 40 40 41 41 41 42 40 40 40 40 40 40 40 40 40 40	162 363 369 111 13 15 43 219 22 28 869 18 263 59 1 1 1 100 14 102 1 100 101 102 101 102 103 104 104 105 105 105 105 105 105 105 105 105 105	127 18 5 43 329 1 18 2 2 1 1752 29 328 56	1 6 6 22 3 3 1 1 9 2 2 10 1,028 447 107 1 3 6 6 27 22 24 25 8 21 1 1 2 6 6
2	i	- •	2			20 2 1 1	1 	1	11 3	4 4	16 11 23 1 14	65 16 135 28 5 4	51 19	46 60	58 35 2	73 65 2
489	153	86	188	57	82	1,763	805	626	501	1,316	4,147	8,248	5,082	2,621	2,292	2,066

PORT OF QUEBEC.

For the fiscal year 1911-12, there arrived at the port of Quebec, 172,734 passengers, of whom 10,444 travelled saloon and 162,290 steerage. Of the saloon passengers, 8,353 were destined to Canada and 2,091 to the United States. Of the steerage passengers, 146,334 were for Canada and 15,956 for the United States. Included in the steerage passengers for Canada were 17.862 returned Canadians and 2,522 tourists, leaving the immigration proper at 125,950 souls, an increase as compared with the preceding fiscal year of 19,329 persons.

Table I deals with the total arrivals of saloon passengers; Table II with the total arrivals of steerage passengers; Table III with the monthly arrivals of immigrants for Canada, and Tables IV and V give summaries of the information obtained from immigrants for Canada upon arrival.

TABLE I.

NATIONALITY and Sex of Saloon Passengers arriving at the Port of Quebec, for the Fiscal Year ended March 31, 1912.

		Can	ADA.		Į	NITED	STATE	13.	CAN		nd Un	ITED
	Males.	Females.	Children.	Totals.	Males.	Females,	Children.	Totals.	Males,	Females.	Children.	Totals.
African, South Australian Australian Belgian Butch French German English Welsh Scotch Irish West Indian Italian New Zealand Portuguese Persian Roumanian Russian Spanish Swiss Danish Icelandic Swedish Norwegian U.S.A. Citizens Negro Canadian Tourist	7 2 3 3 5 5 21 22 703 15 261 74 3 3 7 7 1 2 2 2 1 1 2 2 6 9 2,062 1,088	3 4 4 2 2 20 10 488 5 151 27 2 2 3 3 1 1 2 1 7 2 1 1,996 689	1 1 1 1 1 86 22 1 1 3 4 4 1 1 1 3 1 3 1 1 1 1 1 1 1 1 1	4 12 4 6 8 8 42 32 1,277 20 434 102 9 10 1 1 1 1 1 3 3 2 1,377 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 1 4 14 125 1 1 1 1 3 2 2 1 1 2 6 6 1 1 5 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 2 1 3 8 9 1 1 4 0 1 4 1 2 1 2 1 3 1 2 1 3 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11 12 11 11 11 11 11 11 11 11 11 11 11 1	1 82 24 1 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	9 22 33 66 255 366 828 844 17 33 	34 44 433 188 579 59 191 41 24 33 1 1 2 2 2 2 1,959 764	1 1 2 98 23 1 1 3 4 4 3 19 60 60	54 1,505 211 516 126 3 3 14 10 1 1 1 1 1 1 0 3 3 6 5 1,707 1 4,377 1,969
Totals	4,356	3,487	510	8,353	873	1,140	78	2,091	5,229	4,627	588	10,444

TABLE II.

NATIONALITY and Sex of Steerage Passengers arriving at the Port of Quebec, for the Fiscal Year ended March 31, 1912.

				1								
		CAN	ADA.		U	NITED	STATES	Š.	Can		ND UN	ITED
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals
African, South Australian Austrian, N.E.S Bohemian Bukowinian Croatian	1,404 35 98 25	$\begin{array}{c} 2\\17\\350\\29\\28\\10\end{array}$	4 5 284 43 15	10 44 2,038 107 141 42	3 1 64 7	1 58 7	6 18 5	9 2 140 19	7 23 1,468 42 98 29	18 408 36 28 10	10 5 302 48 15 7	19 46 2,178 126 141 46
Dalmatian Galician Hungarian, N.E.S. Magyar Rutheman Slovak Belgian	351 84 81 5,253 47 406	97 45 22 1,123 10 190	72 32 22 902 6 188	1 520 161 125 7,278 63 784	4 7 1 9 3 25	5 10 6 2 6	2 8 5	11 25 1 20 6 36	355 91 82 5,262 50 431	102 55 22 1,129 12 196	74 40 22 907 7 193	1 531 186 126 7,298 69 820
Bulgarian Chinese Dutch. French German, N.E.S. Prussian	462 56 254 702 1,125	6 1 121 367 734	118 186 916	475 57 493 1,255 2,775	62 23 145	44 19 122	46 15 149	3 152 57 416	465 56 316 725 1,270	6 1 165 386 856	7 164 201 1,065	478 57 645 1,312 3,191
English Welsh. Scotch Irish West Indian	27,330 520 8,960 2,757	22,138 332 8,892 2,105 5	$15,180 \\ 204 \\ 5,410 \\ 864 \\ 10$	$64,648 \\ 1,056 \\ 23,262 \\ 5,726 \\ 24$	1,316 44 372 152	1,256 28 383 103	725 29 283 33	3,297 101 1,038 288 1	28,646 564 9,332 2,909 9	23,394 360 9,275 2,208 6	15,905 233 5,693 897 10	67,945 1,157 24,300 6,014 25
Jamaican Greek Hebrew, N.E.S. Russian Polish Austrian	1 176 109 914 6 57	1 17 96 831 2 45	12 118 787 11 51	205 323 2,532 19 153	$\begin{array}{c} & & & & 3 \\ & & 21 \\ & & 251 \\ & & & & \end{array}$	19 306	28 362 5	3 68 919	1 179 130 1,165 6 59	17 115 1,137 2 51	12 146 1,149 11 56	208 391 3,451 19 166 3
" German. Italian. Newfoundland. New Zealand. Polish, N.E.S " Austrian " German.	1 559 9 230 708 4	1 53 1 2 103 267 2	73 211	3 658 1 11 406 1,186	11 15 23 4	6 18 45 6	10 14 9	20 43 82 19	570 570 9 245 731 8	1 59 1 2 121 312 8	83 225 10	678 1 11 449 1,268 26
Russian Persian Roumanian Russian, N.E.S Finnish	287 12 242 1,866 586	113 1 96 714 331	126 845 170	484 13 464 3,425 1,087	98 4 304 453	85 261 444	39 1 175 244	222 7 740 1,141	385 12 246 2,170 1,039	198 1 98 975 775	123 127 1,020 414	706 13 471 4,165 2,228
Doukhobor. Spanish Swiss Servian Danish Icelandic	7 98 83 50 204 75	5 71 76	14 19 5 39 42	24 103 138 60 314 193	1 14 174 4	10 101 3	70 1	1 25 345 8	99 97 50 378 79	$\begin{array}{c} 3 \\ 5 \\ 46 \\ 5 \\ 172 \\ 79 \end{array}$	20 5 109 43	24 104 163 60 659 201
Swedish Norwegian. Turkish, N.E.S. Armenian Syrian. Arabian	912 645 179 18 29	344 321 8 2		1,517 1,166 192 20 64	674 1.066 16 3 5	458 690 3	227 242 1	1,359 1,998 20 3 5	21	802 1,011 11 2 16	488 442 6	2,876 3,164 212 23 69
Hindoo	32	1	21	92	1,035			2,863	1,067	1,595	293	2,955 1
Total immigration Returned Canadian. Tourist	58,087 9,062 1,292		27,636 2,609 91	125,950 17,862 2,522	148	6,070	3,034	15,530	64,513 9,062 1,440	6,191	30,670 2,609 122	141,480 17,862 2,948
Totals	68,441	47,557	30,336	146,334	6,574	6,317	3,065	15,956	75,015	53,874	33,401	162,290

TABLE III.

Monthly Arrivals of Immigrants for Canada, by Nationalities, at the Port of Quebec, for the Fiscal Year ended March 31, 1912.

	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Totals.
African, South		4 11 732 13 89 19	2 13 286 19 6 8	1 3 602 11 10 1	1 11 277 15 14 7	3 116 14 7	2 3 13 7 1 6	12 28 14	10 44 2,038 107 141 42
Dalmatian Galician. Hungarian, N.E.S. Magyar Ruthenian. Slovak Belgian Bulgarian Chinese		285 19 23 4,002 18 254 166 16	1 65 6 25 1,537 9 77 39	92 59 10 473 18 98 40 2	29 27 6 194 4 78 13	5 11 35 445 2 120 10 4	6 11 15 402 7 91 84 6	38 28 11 225 5 36 120 4	1 520 161 125 7,278 63 784 475 57
Dutch French German, N.E.S Prussian	35 2 10	152 435 452	94 169 822	54 201 320	63 102 301	48 142 314	37 147 426	10 57 130	493 1,255 2,775 1
English Welsh Scotch Irish West Indian	2,661 50 112 20	18,600 341 7,875 1,862 12	11,884 208 5,606 1,055 4	7,974 139 2,684 684	6,227 81 1,849 577 5	8,855 123 2,175 689	6,351 89 2,337 613	2,096 25 624 226	64,648 1,056 23,262 5,726 24
Jamaican		66 26 232	$\begin{array}{c} 1 \\ 65 \\ 88 \\ 384 \\ 2 \end{array}$	6 77 566 1	5 53 307	17 43 601 4	24 11 243	1 22 25 198 12	2 205 323 2,532 19
Austrian German. Italian Newfoundland		396	14 3 85	58 1	13 45	39 42	7 19	13	153 3 658 1
New Zealand. Polish, N. E.S. Austrian German. Russian		143 432 90	144 165 1 123	$\begin{array}{c} 1 \\ 20 \\ 206 \\ 6 \\ 70 \end{array}$	31 51 35	8 147 54	35 114 	25 71	11 406 1,186 7 484
Persian. Roumanian Russian, N.E.S. Finnish Doukhobor.	3 49	3 141 914 214 15	90 510 215	2 46 891 158	67 253 113	6 70 277 154	29 283 112	35 1 21 294 72	13 464 3,425 1,087
Spanish Swiss Servian Danish	1 15	53 31 11 74	3 29 5 40	10 31 2 54	9 5 3 28	7 28 52	1 12 33 25	20 1 6 26	103 138 60 314
Icelandic. Swedish Norwegian. Turkish, N.E.S. Armenian. Syrian	86 71 1	40 418 275 19 2 3	$\begin{array}{c} 35 \\ 286 \\ 219 \\ 69 \\ 1 \\ 20 \end{array}$	64 229 175 30 7 18	22 116 112 10 1 10	17 191 168 23 2 8	14 108 114 12 4 3	1 83 32 28 3 2	193 1,517 1,166 192
Arabian. U. S. A. Citizens. Hindoo	2	13	19	9	14	23	12		92 1
Totals	3, 159	38,999	24,571	16,255	11,205	15,103	11,945	4,713	125,950

TABLE IV.

MONTHLY Arrivals of Immigrants for Canada, by Occupation and Destination, at the Port of Quebec, for the Fiscal Year ended March 31, 1912.

		1	=	1					
	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Totals.
Agriculturists	975	14,617	8,570	5,690	3,256	3,439	2,742	1,338	40,627
General labourers Mechanics.	642 296	9,574 4,325	6,176 $2,522$	3,943 1,759	2,791 1,806	$\frac{4,120}{2,772}$	3,198 2,069	1,188	31,632 16,300
Clerks. Miners.	161 52	1,831 610	938 343	843 310	806 240	920 390	823 311	131	6,652 2,387
Female servants Not classified	208 831	3,311 4,731	2,663 3,359	1,463 2,247	1,091 1,215	1,793 1,669	1,635 1,167	568 401	12,732 15,620
Totals	3,159	38,999	24,571	16,255	11,205	15,103	11,945	4,713	125,950
Maritime Provinces Quebec	9 386	208 6,970	187 3,728	188 2,505	141 1,915			73 1,035	
Ontario	1,319 426	13,822 7,014		6,267 2,788	4,362 1,580	5,883	4,849 1,395	1,761	
Saskatchewan	316 314	3,179 3,443	2,361	1,480 1,384	1,047 930	1,170 1,272	956 886	352	10,942
British Columbia Yukon	389	4,362	3,036	1,642	1,223	1,861	1,525	479	14,517
Totals	3,159	38,999	24,571	16,255	11,205	15,103	11,945	4,713	125,950

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TABLE NATIONALITY, Sex, Occupation and Destination of Immigrant Arrivals for

												TRAI	DE OR
		SE	:x.			Laborated Class.		Genera	1 Labo	mrers.	Me	chanic	s.
	Males.	Females.	Children.	Totals.	Males.	Pemales.	Children.	Males.	Females.	Children.	Males.	Females.	Children.
African, South. Australian Austrian, N. E. S. Bohemian Bukowinian Croatian Dalmatian Galician	1,404 35 98 25 1		4 5 284 43 15 7	10 44 2,038 107 141 42 1 520	8 904 18 33 14	1 211 12 8 3	210 24 12 3	8 62	51 3 6 1	58 7 3 1	3 8 1	4 1 2	7 1
Hungarian, N. F. S. Magyar Ruthenian Slovak Belgian Bulgarian Chinese Dutch	84 81 5,253 47 406 462 56 254	10 190 6		161 125 7,278 63 784 475 57 493	3,226 33 179 181	27 12 642 3 65 2	21 18 737 3 81 4	17 13 2,004 13 99 270 13 52	10 6 114 2 26 3	8 128 2 21 3	3, 3, 4 	9 27	7 32
French. German, N.E.S. Prussian. English. Welsh. Scotch. Irish. West Indian.	702 1,125 1 27,330 520 8,960 2,757	367 734	186 916 15,180 204	1,255 $2,775$ 1 64 648 $1,056$ $23,262$	10,404 205 3,066	115	118 687 3,997 47 985 202 1	7,662 111 2,258	26 68 4,542 45 1,346 308	18 106 4,460 51 1,552 264	75 89 4,269 65 1,602 222	25 34 3,027 34	14 47 2,972 39 1,241 100
Jamaican. Greek Hebrew, N.E.S. Russian Polish Austrian German Italian	1 176 109 914 6 57 1 559	1 17 96 831 2 45 1 53	12 118 787 11 51	2	41 6 67 1 6	29	46	13	4 17 131 1 7 23	1 26 157 2 17	1 3 18 210 1 8	1 18 162	16 170 6
Newfoundland New Zealand Polish, N.E.S Austrian German Russian Persian	9 230 708 4 287 12	1 103 267 2 113 1	73 211 1 84	1 10 406 1,186 7 484 13	1 116 413 4 162 7	25 105 1 31	33 128 1 33	92 92 251 95 4	14 43 32	23 54 31	2 5 17 10	6 2	2 1
Roumanian Russian, N.E.S. Finnish Doukhobor. Spanish Swiss. Servian	242 1,866 586 7 98 83 50	96 714 331 3 5 36	19 5	3,425 1,087 24 103 138 60	129 1,207 173 7 36 38 29	44 452 44 3 12	85 660 42 14 10	554 335 58 20 20	25 84 58 1 2	27 95 69 1 2	6 36 15 2 6	17 7	23 9
Danish. Icelandic. Swedish. Norwegian. Turkish, N.E.S. Armenian Syrian Arabian	204 75 912 645 179 18 29	321 8 2	261 200 5	314 193 1,517 1,166 192 20 64	559 317 88 6 16	95 74 1	27 25 154 83	293 217 84 6	5 52 57 3	4 9 67 65 2	13 5 31 38 2 1 2	5 3 18 12 1 	1 19 28
U.S.A. Citizens. Hindoo	32	$\frac{39}{1}$ $\frac{1}{40,227}$	21 27,636	92	10	7,129	8,620	17,090	7,152	7,390	6,883	4,647	4,770

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V.

Canada, at the Port of Quebec, for the Fiscal Year ended March 31, 1912.

Occupation											DE	STINAT	TON.			=
Clerks, Traders, &	ce.	М	iners		vants.	Not	Classi	ified.					an.		ımbia.	
Males. Pemales.	Children.	Males.	Pemales.	Children.	Female Servants.	Males.	Females.	Children.	Maritime Provinces.	Quebec.	Ontario.	Manitoba.	Saskatchewan.	Alberta.	British Columbia.	Yukon.
3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	1 5 3 1	3	6	4 72 4 11 5	6 15 4	1 9 10 6 3 1	2 1	1 15 11	3 11 492 9 39 4	3 10 364 1 19 12	1 5 655 17 41 9	1 293 46 33 10	2 157 19 7	1 15 62 4 2 7	
5 1. 1. 13 6 3 1 139	3	3 3 3 10 1 32	5 1 17	4 1 26	30 5 2 341 4 24 	9 39 39	3 2 11 25	25	9 2 9 88 2 56 8	109 14 12 1,940 5 330 153 47	102 45 19 1,412 16 26 301 6	195 26 44 2,345 22 159 10 84	50 30 843 2 109	38 9 8 588 4 69 3	7 15 3 62 12 35	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3 5 14 806 13 381 76 1	20 30 606 55 310 22	1 7 5 223 8 133 7	3 7 21 279 21 215 7	22 70 165 6,268 136 3,629 954	$ \begin{array}{r} 20 \\ 103 \\ 55 \\ 1 \\ 2,691 \\ 52 \\ 888 \\ 255 \\ 6 \end{array} $	11 109 46 3,476 50 1,354 348 2	24 41 2,666 33 1,036 215 8	13 24 447 22 192 24	105 622 245 9,597 130 3,216 933 10	93 91 204 28,921 302 8,557 2,494 3	7,411 202 3,657 1,028	896 1 4,784 71 1,418 286	117 139 669 1 5,274 147 2,138 348	41 48 70 8,208 182 4,083 612 10	6
2 2 21 14 69 66 1 1 8 4	3 21 84 9 10	14	2	1	2 5 75 4 	7 37 335 3 22 1 25	6 42 366 24 1 10 1	\$ 55 329 18 11	3 2 52 	63 161 873 2 99	136 95 853 16 40 2 108	39 582 12 1 29	10 80 2	3 12 59 23	3 33 1 54	
1 3 1 9 7 3 3	4	14 15 9 31 52	4 2 5 16	 5 6 5 24	1 42 95 1 30 14 162 190	$\begin{array}{c} 4\\ 3\\ 11\\ \dots\\ 10\\ \dots\\ 2\\ 29\\ 8 \end{array}$	1 12 17 13 1 13 47 13	10 18 15 14 55 24	11 20 8 8	3 92 161 149 1 219 480 90	2 93 278 3 168 12 56 618 773	1 135 449 3 82 21 939 33	57 136 50 149 803 36	11 122 1 18 14 361 44	4 7 20 9 186 111	
6	2	1 1 1 13 12	1 3 5 4	5 5	14 2 29 32 160 156	10 12 11 55	3 5 8 10 14 14	5 3 3 5 12 15	16 17	63 50 2 68 1 126 151	29 25 42 58 300 167	2 10 4 68 162 257 189	11 12 34 16 280 219	28 55 204 235	7 13 29 14 334 188	
4 3 3,201 1,995 1	7 	1,270	1 458	3 659	15 12,732	1 3 8	$ \begin{array}{c} 2 \\ 2 \\ 6 \\ \vdots \\ 11 \\ 1 \\ 6,114 \end{array} $	11	13 ₂ 1,139	19 7 27 1 22 21,372	$ \begin{array}{c c} 172 \\ 12 \\ 14 \\ & \\ & \\ \hline & \\ & \\ & \\ & \\ & \\$	$ \begin{array}{c} $	52	$ \begin{array}{c} $		11

PORT OF VANCOUVER.

For the fiscal year 1911-12, there arrived at the port of Vancouver 8,523 passengers, of whom 1,688 travelled saloon and 6,835 steerage. Of the saloon passengers 1,439 were destined to Canada and 249 to the United States. Of the steerage passengers 6,045 were for Canada and 790 for the United States. Included in the steerage passengers for Canada were 1,515 returned Canadians and 2,314 tourists, leaving the immigration proper at 2,216 souls, a decrease as compared with the preceding fiscal year of 563 persons.

Table I deals with the total arrivals of saloon passengers; Table II with the total arrivals of steerage passengers; Table III with the monthly arrivals of immigrants for Canada, and Tables IV and V give summaries of the information obtained from immigrants upon arrival.

TABLE I.

NATIONALITY and Sex of Saloon Passengers arriving at the Port of Vancouver, for the Fiscal Year ended March 31, 1912.

		Can.	ADA.		U	NITED	State:	ş.	Can		ND UNI TES.	TED
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.
Australian Austrian Chinese French German English Scotch Irish Italian Japanese Russian Spanish Swedish Norwegian U.S.A. Citizens Canadian Tourist	1 1 1 25 6 3 1 84 676	73	20	3 6 6 7 1 3 1 179 1,177	1 2 2 4 4 3 3 2 1 1 1 40 53	1 7 3 3 1 2 38 56	9	1 1 2 3 11 10 2 2 1 1 1 1 87	1 1 1 3 2 29 9 9 2 3 3 1 1 1 1 84 729	3 1 1 1 222 4 1 1 	20 4 9 22 84	4 1 6 4 3 71 17 1 1 2 3 1 1 1 8 8 179 1,303
Totals	798	528	113	1,439	110	109	30	249	908	637	143	1,688

TABLE II.

NATIONALITY and Sex of Steerage Passengers arriving at the Port of Vancouver, for the Fiscal Year ended March 31, 1912.

		Can	ADA.		U:	NITED S	STATES.		CAN	SADA A. STA	ND UNI	ITED
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.
African, South Australian Austrian, N.E.S. Bohemian Hungarian Bulgarian Chinese French German English Welsh Scotch. Irish West Indian Jamaican Greek Hebrew, N.E.S. "Russian Italian Japanese New Zealand Portuguese Russian, N.E.S Finnish Swiss Danish Swedish Norwegian U.S.A. Citizens. Hindoo. Total immigration Returned Canadian Tourist	1 51 1 1 1 1 2 1,442 5 1 1 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	33 39 1 48 222 3 3 1 1 9 3 3 	142 	5 106 1 1 1 1 2 1,623 2 10 2166 7 87 555 1 2 2 1 6 40 1 1 1 5 1 6 3 3 1 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15 2 2 77 2 2 3 3 1 1 2 2 1 1 1 2 2 3 1 2 2 3 1 2 2 3 1 2 2 3 1 2 2 3 1 2 2 3 1 2 2 3 2 3	15 8 11 12 2 2 2 2 1 	30 31	**************************************	1 66 3 1 1 1 2 1 1 5 1 1 7 9 6 4 5 3 3 3 3 3 3 3 3 3 3 3 3 4 1 6 6 6 6 6 6 6 6 6 6 6 6 6 1 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 7 23 3 7 5 4 8 239 59 160	5 146 3 1 1 1 2 1,711 2 166 262 2 2 3 3 6 1 1 1 1 8 5 5 2 2 2 2 3 4 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Totals	5,234	414	397	6,045	632	97	61	790	5,866	511	458	6,835

TABLE III.

MONTHLY Arrivals of Immigrants for Canada, by Nationalities, at the Port of Vancouver, for the Fiscal Year ended March 31, 1912.

	-												
	Apr.	May	Lunc	Luly	Ana	Sont	Oot	Nov.	Don	Lan	Feb.	Man	Totala
	Apr.	May.	o une.	July.	Aug.	gept.	Oct.	1000.	Dec.	Jan.	reo.	Mar.	Totals
African, South.	4	$\begin{vmatrix} \cdots \\ 2 \end{vmatrix}$			1								5
Australian	29	2			9		8	7	6	4		14	100
Austrian, N.E.S		1											1
Bohemian		1											1
Hungarian					1								1
Bulgarian Chinese	157	189	98	329	97	117	120	224	117	68	72	35	1,623
French	137	100	2	929	174	117	120	224	114	00	12	00	1,020
German	1	1	ĩ		1	1	1	1			3		10
English	35	93	9	15	$\tilde{7}$	5	7	9	3		15	14	216
Welsh		2			1	1	1					2	7
Scotch	13		3		3	3	8	7	4		1	9	87
Irish	3	9	4	3		1	5	3	19	2	1	5	55
West Indian							1						1
Jamaican	2												2
Greek											1		1 6
Hebrew					6								, O
Japanese			2										7
New Zealand	15				1		1	9	9			3	40
Portuguese					1				_		1		1
Russian, N. E.S.					1								11
Finnish						2	1					1	5
Swiss				1									1
Danish											1		1
Swedish		3						3					6
Norwegian		$\frac{1}{2}$										2	3
U.S.A. Citizens	4	2	5								3		14
Totals	274	337	163	353	128	130	156	257	151	78	99	90	2,216
Totals] 213	301	100	3,76	120	100	130	201	101	10	33	30	2,210

TABLE IV.

Monthly Arrivals of Immigrants for Canada, by Occupation and Destination, at the Port of Vancouver, for the Fiscal Year ended March 31, 1912.

*	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals
Agriculturists	30 30 7 147 4 4 52	35 129 29 69 10 9	84 4 21 1 2	6 117 8 195	4 62 10 26 1 1 1 24	2 73 4 33	6 83 8 35 2 1 21	7 105 5 88 2 5 45	5 67 5 44 1	28 37 3 10	57 1 25 6	14 23 8 27 2 2	132 858 89 747 25 31 334
Totals	274	387	163	353	128	130	156	257	151	78	99		
Maritime Provinces Quebec Ontario Manitoba Saskatchewan Alberta British Columbia	3 12 13 246		5 1 6	3 52 63 8 3 5 219	$\begin{array}{c} 11 \\ 32 \\ 1 \\ 3 \\ 2 \\ 79 \end{array}$	5 31 19 1 4 	 1 8 4 3 140	4 37 31 3 2 4 176	4 21 26 7 1 1 91	4 2 10 3 59	9 13 5 1 71	3 3 1 83	21 187 260 44 19 48 1,637
Totals	274	337	163	353	128	130	156	257	151	78	99	90	2,216

3 GEORGE V., A. 1913

TABLE

NATIONALITY, Sex, Occupation and Destination of Immigrant Arrivals for

Sex. Farmers or	CRADE hanics.	*
Males. Females. Children. Totals. Females. Kemales. Children. Males. Males.	Females.	Children.
African, South	4 1)	1
Totals 1,845 162 209 2,216 101 14 17 846 4 8 75	8	6

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V.

Canada at the Port of Vancouver, for the Fiscal Year ended March 31, 1912.

Occur	PATIC	N.										Des	TINATIO	ON.		
C Trac	lerks lers,	, &c.	7	liner	·s.	vants.	Not	Classit	fied.	іпсек.				·an.		umbia.
Males.	Females.	Children.	Males.	Females.	Children.	Pennale Servants.	Males.	Females.	Children.	Maritime Provinces.	Quebec.	Ontario.	Manitoba.	Saskatchewan.	Alberta.	British Columbia
6	6	4	3			3	18	17	11 		2	2		2	7	5 93 1 1
617	23	51					67	15 1	84	21	180	247	38	9	13	$1 \\ 2 \\ 1,115 \\ 2 \\ 10$
11 1 4 6	1 	1	13 1 3 1	i	i	18 6 2	26 1 16 6	13	13		2	4 2	1 4 1	3 2	7 1 10	199 6 64 50 1
	····i	1						1	5							2 1 6 1 7
3 1 1	2			• • • • • • • • • • • • • • • • • • • •		2	2 1	4	2		ii	i			10	28 1 11 5
i 1			1 1				2	1								1 6 3 14
655	35	57	23	1	1	31	145	69	120	21	187	260	44	19	48	1,637

PORT OF VICTORIA.

For the fiscal year 1911-12, there arrived at the port of Victoria 9,205 passengers, of whom 426 travelled saloon and 8,779 steerage. Of the saloon passengers, 373 were destined to Canada and 53 to the United States. Of the steerage passengers, 8,330 were for Canada and 449 for the United States. Included in the steerage passengers for Canada were 2,808 returned Canadians and 133 tourists, leaving the immigration proper at 5,389 souls, an increase as compared with the preceding fiscal year of 1,703 persons.

Table I deals with the total arrivals of saloon passengers; Table II with the total arrivals of steerage passengers; Table III with the monthly arrivals of immigrants for Canada, and Tables IV and V give summaries of the information obtained from immigrants for Canada upon arrival.

TABLE I.

NATIONALITY and Sex of Saloon Passengers arriving at the Port of Victoria, for the Fiscal Year ended March 31, 1912.

		CAN	ADA.		τ	JNITED	STATE	s.	Can	ADA AS	ND UNIT	CED
	Males.	Females.	Children.	Totals.	Mules.	Females.	Children.	Totals.	Males.	Females.	Children.	Totals.
Australian Austrian Chinese. Dutch German English Scotch Irish West Indian Italian Japanese. Polish Russian Norwegian U.S.A. Citizens. Canadian Tourist Totals	1 1 1 1 1 16 5 5 2 1 1 5 1 1 1 45 103 103	10 11 11 11 40 91 148	3 3 3 13 10	1 1 1 3 3 1 1 1 3 3 2 6 6 5 1 1 1 9 9 1 1 4 5 9 8 2 0 4 4 3 7 3 7 3 7 3	1 12 19 35	2	1	1 3 1 1 26 21 533	2 1 1 1 18 5 5 2 1 1 5 1 1 13 45 122 	11 2 1 1 1 4 40 93 165	3 3 4 13 10	2 1 3 3 5 7 7 5 1 1 1 9 8 225

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TABLE II.

NATIONALITY and Sex of Steerage Passengers arriving at the Port of Victoria, for the Fiscal Year ended March 31, 1912.

		Can	ADA.		Ţ	JNITED	STATE	s.	Cas		ND UNI	TED
	Males.	Females.	Children.	Totals,	Males.	Femules.	Children.	Totals.	Males.	Females.	Children.	Totals.
Australian Austrian Chinese Freuch German English Welsh Scotch Irish Greek Italian Japanese New Zealand. Russian, N.E.S Finnish Danish Swedish U.S.A. Citizens. Hindoo	1 4,211 1 5 5 5 5 5 5 6 7 11 1 8 8 1 1 317 1 1	361 361	249 249 5 5 5	8 4,5000 1 5 677 8 8 222 8 1 1 7588 4	5 1 95 95 1 1 1 1 5 1 1 1 30	1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	111 1966 11 19 19 55 66 11 	6 1 4,305 6 63 2 14 8 2 2 1 317 2 5 1 5 2 3 3 1 7 2 1 3 1 7 2 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3	111 111 177 4 361 4	250 250 25 6 2 2 80 1	19 1 4,596 6 76 8 27 1 1 758 75 1 5 2 57 1
Total immigration Returned Canadian Tourist	4,620 2,713 76	426 46 42	343 49 15	5,389 2,808 133	154 230	31	14	199 250	4,774 2,713 306	457 46 51	357 49 26	5,588 2,808 383
Totals	7,409	514	407	8,330	384	40	25	449	7,793	554	432	8,779

TABLE III.

Monthly Arrivals of Immigrants for Canada, by Nationalities, at the Port of Victoria, for the Fiscal Year ended March 31, 1912.

	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals.
Australian Chinese French	366	627	646	661		538	2 174	550	140	143 1	49		$\frac{8}{4,500}$
German	8	17	i	4	$\begin{bmatrix} 2\\2\\ \dots \end{bmatrix}$	3 8	i	1	26	1	2 	1	5 67 8 22
Scotch Irish. Greek. Italian	2	3					1		2				8 1 1
Japanese	49 3	96	90	78	71	66	130	48			30		758 4 4
Swedish Hindoo Totals		748					310		197		86	301	$\frac{1}{5,389}$

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TABLE IV.

MONTHLY Arrivals of Immigrants for Canada, by Occupation and Destination, at the Port of Victoria, for the Fiscal Year ended March 31, 1912.

													1
	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals.
Agriculturists General labourers. Mechanics Clerks, traders, &c. Miners.	14 22 6 349	211	22 83 4 542	9 84 2 554	3 83 1 228	1 122 419	9 35 1 211	17 39 1 473	2 56 3 119	23 3 121	4 33 2 35 2	* *17 21 5 210	105 812 31 3,775 10
Female servants Not classified	38		87 87	92	73 ———	73	52	69	17	13	8	48	18 638
Totals	430	748	740	745	451	616	310	601	197	164	86	301	5,389
MaritimeProvinces Quebec. Ontario. Manitoba Saskatchewan	1		1 19	1 17 3	1 7		3	9 21 2 2	3 15 1				30 98 6 2
Alberta British Columbia	$\frac{2}{427}$	728	720	724	443	616	301	564	178	158	86	301	5,246
Totals	430	748	740	745	451	616	310	601	197	164	86	301	5,389

3 GEORGE V., A. 1913

TABLE

NATIONALITY, Sex, Occupation and Destination of Immigrant Arrivals for

												TRAD	E OR
			x.		Farm	mers a Labou Class.	nd irers	Genera	al Labo	urers.	Me	chanic	·
	Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Males.	Pemales.	Children.	Males.	Femules.	Children.
Australian Chinese. French German English Welsh Scotch Irish Greek Italian Japanese New Zealand Danish Swedish Hindoo	1 4,211 5 55 55 2 11 8 1 317 1 4 1	5 40 10 1 6 361 3	249. 	8 4,500 1 5 67 8 22 8 1 1 758 4 4 1	43 6 30	21	1	29 29 1 1 1177 14 11 17	1 1 1 	15	7 1 1 10	1	
Totals	4,620	426	343	5,339	83	21	1	697	94	21	24	7	

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V.

Canada, at the Port of Victoria, for the Fiscal Year ended March 31, 1912.

Осстр.	ATION	ζ.										Des	TINATI	on.		
Cle Trad	erks, ers, &	ke.	λ.	liner	š.	nts.	Not	Classit	fied.	vinces.				*		bia.
Males.	Females.	Children.	Males.	Females.	Children.	Female Servants.	Males.	Females.	Children.	Maritime Provinces	Quebec.	Ontario.	Manitoba.	Saskatchewan	Alberta	British Columbia
3,528 1 2 2 1 120	14	85 5	1 6			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	100 1 3 5 2 1	8 3 222 2	2 159 2 4		30	96	6	2	2	8 4,363 1 5 644 8 21 8 1 1 7566 4 4
3,654	27	94	10			18	152	259	227		30	98	6	2	7	$\frac{1}{5,216}$

UNITED STATES PORTS.

For the fiscal year 1911-12, there arrived in Canada, via ports in the United States, 31,639 passengers, of whom 2.708 travelled saloon and 28,931 steerage. Included in the steerage passengers were 4,981 returned Canadians and 469 tourists, leaving the immigration proper at 23,481 souls, an increase as compared with the preceding fiscal year of 5,751 persons.

Table I deals with the total arrivals of saloon passengers; Table II with the total arrivals of steerage passengers; Table III with the monthly arrivals of immigrants, and Tables IV and V give summaries of the information obtained from immigrants upon arrivals.

TABLE I.

NATIONALITY and Sex of Saloon Passengers for Canada, arriving at Ports in the United States for the Fiscal Year ended March 31, 1912.

African, South 2 Australian 3 Australian, N.E.S 1 Bohemian 1 Croatian 1 Belgian 1 Belgian 11 Belgian 11 Butch 7 French 62 20 German 36 21 2 English 197 68 3 English 197 68 10 English 197 68 10 English 197 68 10 English 197 68 10 English 197 68 10 English 197 68			CAN	ADA.	
Australian 3 Austrian, N.E.S 1 Bohemian 1 Croatian 1 Magyar 1 Belgian 11 Dutch 7 French 62 German 36 Gernan 197 68 3 Zenglish 197 Welsh 1 Scotch 55 1rish 13 West Indian 11 Jamaican 1 Greek 14 Hebrew, N.E.S 1 "Russian 2 Russian 28 Roumanian 1 Russian 3 Swedsh 1 Swiss 6 4 1 Swedish 1 Norwegian 2 U.S.A. Citizens 2 1 1 Negro 4 Canadian 1,076 50 46 1,076 504		Males.	Females.	Children.	Totals.
	Australian Austrian, N.E.S Bohemian Croatian Magyar Belgian Dutch French German English Welsh Scotch Irish Usest Indian Jamaican Greek Hebrew, N.E.S. Russian Italian New Zealand Roumanian Roumanian Roumanian Swiss Danish Swedish Norwegian U.S.A. Citizens Negro. Canadian	77 622 366 197 1 155 13 111 	21 68 21 8 7 1 6 	3. 4 4 3 1 1 1 1 699	1 8 5 26 8 8 2 2 2 2 4 1 1 1,64

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TABLE II.

NATIONALITY and Sex of Steerage Passengers for Canada, via Ports in the United States, for the Fiscal Year ended March 31, 1912.

		CAN	ADA.	
	Males.	Females.	Children.	Totals.
African, South	17	104	2	128
Australian	11	5	ĩ	17
Austrian, N. E. S	146	31	20	197
BohemianBukowinian	14 3	4	3	2
Proatian	179	19	1	199
Dalmatian	25	1	6	3:
Galician	223	16	11	250
Hungarian, N.E.S	123 96	43 50	$\frac{29}{72}$	193 213
Ruthenian	842	146	94	1,085
Slovak	60	19	9	88
Belgian	299	66	35	400
Bulgarian Chinese	657	7	2	66
Outch	98	74	56	228
rench	167	84	28	279
German	549 3,368	$\begin{array}{c} 257 \\ 1,350 \end{array}$	283	1,089
EnglishVelsh	5,505 64	1,550	681	5,399 85
cotcli	453	368	91	912
rish	340	196	43	579
Vest Indian	31	40	3	7-
Bermudian	24	$\frac{1}{20}$	4	1 48
Freek	330	30	12	375
lebrew, N.E.S.	29	17	24	70
" Russian	171	180	159	510
H Austrian	12 1	20	15	47
talian	4,957	715	511	6,188
Yew Zealand	3	1		4
Portuguese	2			4.5
Polish, N.E.S	$\frac{27}{206}$	8 55	$\begin{array}{c c} & 8 \\ 19 \end{array}$	4; 280
German	9	2	1	1:
" Russian	494	66	36	596
Persian	3			10
Roumanian	$\frac{121}{1,520}$	25 215	18 253	16- 1,988
Finnish.	44	11	200	57
panish	26	9	6	41
wiss	23	6	4	33
Bervian	38 119	$\frac{8}{31}$	$\frac{3}{17}$	167 167
celandic	1	1	14	10
Swedish	223	50	24	297
Norwegian	107	34	9	150
Furkish, N.E.S.	75	9	$\begin{bmatrix} 2\\2 \end{bmatrix}$	8
byrian	8	$\frac{2}{8}$	12	28
Arabian		1		- i
J. S. A. Citizens	8	4	4	16
Vegro. Hindov	4	74	6	84
Indoo		·····i]
Total immigration	16,357	4,501	2,623	23,481
Returned Canadian. Tourist.	3,633 335	947 117	401 17	4,981
		111		469
Totals	20,325	5,565	3,041	28,93

TABLE III.

Monthly Arrivals of Immigrants for Canada by Nationalities, via Ports in the United States, for the Fiscal Year ended March 31, 1912.

Australian, M.E.S. 71 24 22 8 8 5 1 6 6 5 10 32 8 26 19 1 1														
Australian, 5		Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals.
Australian. 5 4 1 1 1 6 2 3 1 1 1 Australian. 5 6 1 1 1 1 6 5 10 32 8 26 19 1 10 80 80 Austrian. 5 6 1 1 1 1 1 2 1 2 1 10 32 8 26 19 1 10 90 76 19 80 Austrian. 5 6 1 1 1 1 1 1 2 2 1 1 1 1 0 9 76 19 80 Austrian. 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	African South	100	13	5	3			2						123
Austrian, N.E.S. 71 24 2 8 5 6 5 10 32 8 26 19 Bohemian 6 1 1 1 1 2 10 27 Coatian 6 1 1 1 1 2 10 27 Coatian 6 6 1 1 1 1 2 10 27 Coatian 7 10 2 10 27 Coatian 8 18 121 35 1 1 1 1 4 4 2 2 1 2 25 2 6 9 19 18 10 9 76 19 19 19 19 19 19 19 19 19 19 19 19 19				4	1		1				2			17
Balk orinian	Austrian, N.E.S.	71	24		8	5			5	10	32	8		
Separation	Bohemian	6	1				1	2					10	21
Dolimatian	Bukowinian			2							10			3
Salician 181 21 35			14		3	-1	O	22			10			
Hungarian, N.E.S. 33 51 6			91				1				4			250
Magyar	Hungarian NES				6			11						
Ruthenian	Magyar			12	1	15	6		11	53	30	10	35	218
Belgran	Ruthenian	119	61								33			
Belgarian	Slovak				7									
Chinese	Belgian													
Dutch 39 42 17 13 14 20 8 4 8 11 52 29 French 41 34 29 10 21 13 19 10 25 11 13 53 29 11 13 39 10 25 11 13 53 124 129 27 308 1,789 5,388 28 11 7 1 25 1 1 7 1 25 1 1 7 1 25 1 1 1 7 1 25 1 1 1 7 1 25 1 1 1 7 1 25 1 33 64 96 46 188 91 1 1 1 1 2 25 8 18 22 1 7 7 8 1 1 3 6 4 8 10 5		90			2	3	2	1	0	00	99	21	420	3
French		30			13	14	20	8	4	8		11	52	
German											11			
English						45	64			113				
Scotch 303 118 37 17 16 25 19 33 64 96 46 138 915	English					72		32					1,789	
Irish	Welsh				2									
West Indian 2 3 9 48 2 9 1 7 Bernudian				37										
Bernudian.									14	10	110	_0	110	74
Jamaican 2		ئد.	3	J	10	_	0	1					1	í
Greek Septent		2		5	4	4	8	10	5		1	3	6	
Russian 39 22 13 19 8 21 12 13 14 15 10 4 2 4 4 11 12 10 4 2 4 4 4 11 12 10 4 2 4 4 4 4 4 4 4 4		84	19	25	29			49						
Russian 39 22 13 19 8 21 12 13 14 15 10 4 2 4 4 11 12 10 4 2 4 4 4 11 12 10 4 2 4 4 4 4 4 4 4 4	Hebrew, N.E.S										_			
Russian Russ	11 Russian		22	13		8		12				18		
Italian		1			4	2	1		11	12	10	4	1	1
New Zealand		1 808	1 038	417	110	185	188	212	246	249	183	223	1.324	
Portuguese			1,000		110	100								4
Polish, N.E.S.						2								2
Gerinan.	Polish, N.E.S	2	1					2						43
Russian. 35 24 14 10 4 5 4 24 14 13 25 424 596 Persian. 3 3 29 9 13 6 61 16 Russian, N.E.S. 716 203 67 48 61 47 49 51 74 135 58 479 1,988 Finnish. 24 12 3 1 2 3 3 4 5 Spanish. 9 7 5 2 5 8 2 1 1 3 4 Spanish. 1 8 5 1 1 1 5 3 2 1 1 4 3 Servian. 1 8 5 1 1 1 5 3 2 1 1 4 Danish. 41 36 2 2 5 8 2 2 2 2 14 51 Icelandic. 5 5 5 5 5 Swedish. 110 35 20 9 2 3 5 23 17 13 16 44 29 Norwegian. 43 22 8 3 1 7 7 6 2 6 7 38 15 Turkish, N.E.S. 9 5 2 7 6 4 17 7 27 8 Armenian. 5 5 5 5 5 5 5 Syrian. 1 8 1 1 2 4 8 1 2 2 Negro. 38 27 18 1 1 1 5 6 10 Negro. 38 27 18 1 1 1 5 6 10 Mexican. 1 1 1 1 2 1 1 1 1 5 6 Mexican. 1 1 1 1 1 1 1 1 1					1	2	5	1	20	19	28	12	118	
Persian 3 3 29 9 13 6 61 16 Rounanian 34 5 1 3 3 29 9 13 6 61 16 Russian, N.E.S. 716 203 67 48 61 47 49 51 74 135 58 479 1,98 Finnish 24 12 3 1 2 3 3 4 5 58 479 1,98 Spanish 9 7 5 2 5 8 1 1 3 4 Sweiss 1 8 5 1 1 1 5 3 2 1 1 4 3 Servian 41 36 2 2 5 8 2 2 2 14 10 44 33 Servian 41 36 2 2 5 8 2 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>91</td> <td>1.1</td> <td>12</td> <td>95</td> <td>194</td> <td></td>									91	1.1	12	95	194	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		30	24	14	10	-1	1	-3	24	14		20	727	3
Russian, N.E.S. 716 203 67 48 61 47 49 51 74 135 58 479 1,988 Finnish 24 12 3 1 2 3 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		34	5		1		3	3	29	9		6	61	
Finnish				67		61	47	49		74	135	58	479	
Swiss. 1 8 5 1 1 1 1 5 3 2 2 1 1 4 3 3 4 1 2 1 1 2 10 10 4 4 10 1 1 1 1 1 1 1 1 1 1 1 1 1	Finnish		12				2			4				57
Servian 1 8 2 4 12 1 2 10 10 44 Danish 41 36 2 2 5 8 2 2 2 2 14 51 16 14 51 16 14 51 16 14 51 16 14 51 16 14 16 16 14 16 16 14 16 17 17 17 17 17 17 17 17 17 17	Spanish			0		2								
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		1	8			1	1							
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		41	36				8							
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			- 00						1	-				2
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Swedish	110	35	20	9	2	3	5						
Armenian 5 Syrian 1 8 1 1 2 4 8 1 2 2 Arabian 1	Norwegian	43	22			1	7	7		2				
Syrian 1 8 1 1 2 4 8 1 2 2 Arabian 1 1 2 1 1 1 2 2 1 1 1 6 14 U.S. A. Citizens 2 1 1 1 1 1 6 14 Negro 38 27 18 1 1 1 8 Hindoo 1 1 1 1 1 1 1 Mexican 1 1 1 1 1 1 1	Turkish, N.E.S	9	5			7			6	4	17			
Arabian 1 U.S.A. Citizens 2 1 1 1 6 1 Negro 38 27 18 1 6 8 Hindoo 1 1 8 1 1 1 Mexican 1 <				1	6			1	9	· · · · · · · · · · · · · · · · · · ·	6	1		$\frac{7}{28}$
Negro. 2 1 1 1 2 1 1 6 Negro. 38 27 18 1 8 Negro 1		1		8	1			1	ن	4				1
Negro. 38 27 18 1 8 Hindoo 1		9	1	1		1	2	1	1	1			6	16
Hindoo	Negro		1	38		27	18		1					84
MCAICAIL	Hindoo				1									1
Totals 6,716 2,458 1,034 571 583 586 607 905 1,077 1,223 1,095 6,626 23,48	Mexican						1						1	1
101218 0,110 2,100 1,001 011 000 000 1,011 1,020 1,000 0,100	Totals	6 =10	9.450	1.024	571	593	586	607	905	1.077	1.993	1.095	6,626	23,481
	Totals	0,110	2,700	1, 7,419	0,1	004)	0.00]	, , ,	2,011	1,220	,]	

TABLE IV.

Monthly Arrivals of Immigrants for Canada, by Occupation and Destination, via Ports in the United States, for the Fiscal Year ended March 31, 1912.

=======================================													
	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals.
Agriculturists. General labourers. Mechanics. Clerks, Traders, &c. Miners. Female servants. Not classified.		864 1,060 179 87 43 51 174	240 460 69 30 8 57	157 156 75 39 11 51 82	121 191 20 37 16 44 154	158 220 56 43 4 31 74	217 211 36 22 10 39 72	5 83	329 348, 48 45 12 100 195	312 385 125 43 36 135 187	353 337 111 44 12 101 137	3,832 1,412 559 189 48 281 305	9,051 7,808 1,712 785 263 1,382 2,480
Totals	6,716	2,458	1,034	571	583	586	607	905	1,077	1,223	1,095	6,626	
Maritime Provinces Quebec Ontario. Manitoba. Saskatchewan Alberta British Columbia. Yukon Territory	43 1,683 2,679 931 378 393 609	30 651 973 267 161 122 253 1	20 275 459 87 50 46 97	7 168 232 49 35 44 36	8 140 268 44 32 32 59	22 154 211 63 43 42 51	9 130 288 37 38 21 84	373 99	15 257 447 95 95 94 74	21 322 451 146 92 70 121	15 200 465 112 71 105 126	62 1,127 3,020 742 516 466 693	5,296 9,866 2,672 1,571
Totals	6,716	2,458	1,034	571	583	586	607	905	1,077	1,223	1,095	6,626	23,481

\$ 3 GEORGE V., A. 1913 ${\bf TABLE}$ ${\bf NATIONALITY}, {\bf Sex}, {\bf Occupation}$ and Destination of Immigrant Arrivals for

Sex. Farmers or Farm Labourers Class Mechanics Class Farmers or Farm Labourers Class Mechanics Class Farmers or Farm Labourers Class Mechanics Class Farmers or														
Farmers or Farmers or Class. Mechanics. Mechanics. Mechanics. Farmers or Farmers													TRA	DE OR
African, South.			Sex	·		Farm	Labo	urers			ş.	M	echanic	s.
Austrilian, M.E.S. 146 31 20 197 95 6 3 41 1 1 5 2 2 Bohemian. 144 4 3 21 6 1 2 4 1 1 1 5 2 2 Bohemian. 147 19 19 1 199 81 1 889 5 1 4 Dalmatian. 25 1 6 32 19 0 6 6 16 6 Galician. 223 16 11 250 107 4 5 116 6 0 Galician. 213 43 29 195 70 14 18 50 8 10 1 Magyar. 96 50 72 218 52 20 42 33 10 12 1 Magyar. 96 50 72 218 52 20 42 33 10 12 1 Magyar. 96 50 72 218 52 20 42 33 10 12 1 Magyar. 96 50 72 218 52 20 42 33 10 12 1 Magyar. 96 50 72 218 52 20 42 33 10 12 1 Magyar. 96 50 72 218 52 20 42 33 10 12 1 Magyar. 96 50 72 218 52 20 42 33 10 12 1 Magyar. 96 50 72 218 52 20 42 33 10 12 1 Magyar. 96 50 72 218 52 20 42 33 10 12 1 Magyar. 96 50 72 218 52 709 77 70 117 11 18 9 Slovak 60 19 9 88 14 4 4 40 3 4 Belgian. 299 66 33 400 224 33 21 35 9 5 24 8 4 Bulgarian. 657 7 2 666 338 0 1 254 7 1 4 Chinese 3 3 3 3 3 3 3 3 3		Males.	Females.	Children.	Totals.	Males.	Females.	Children.	Males.	Females.	Children.	Males.	Females.	Children.
Totals 16,357 4,501 2,623 23,481 7,074 938 1,039 6,418 737 653 1,162 331 219	Australian. Austrian, N.E.S. Bohemian. Bukowinian Croatian. Dalmatian Galician Hungarian, N.E.S. Magyar Ruthenian Slovak Belgian. Bulgarian. Chinese Dutch. French. German. English. Welsh. Scotch. Irish West Indian Bermudian. Jamaican Greek. Hebrew, N.E.S. "Russian" German Italian. New Zealand Portuguese. Polish, N.F.S. "Austrian" German Russian, N.E.S. Finnish. Spanish. Spanish. Spanish. Spanish. Spanish. Sysiss. Servian. Danish. Icelandic Swedish. Norwegian Turkish, N.E.S. Armenian Syrian. Arabian. Arabian. U.S.A. Citizens Negro. Hindoo Mexican	11	5 31 4 4 4 19 19 16 43 50 146 19 66 67 7 7,350 20 20 20 20 215 11	1 20 3 3 5 5 6 6 6 6 11 29 9 72 2 2 4 15 9 1 3 5 5 3 2 6 6 4 4 1 2 2 6 4 4 1 5 1 7 7 2 2 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	17, 197 21 3 199 32: 250 198 218 1,082 88 400 6666 3 228 8279 1,089 5,399 5,399 74 1 48 372 70 510 47 1 6,183 280 122 579 41 333 499 167 2 297 71 150 84 77 2 297 150 84 11 166	95 6 6	6 1 1 4 14 200 777 4 333 233 14 1299 2667 3 122 2 4 1111 22 2 8 8 9 5 5 1 1 1 1 1 1 4 1	3 2	31 41 41 33 89 6 116 50 33 117 40 355 254 47 573 8 97 58 6 44 44 3 112 110 66 44 54 11 11 11 11 11	5 1 10 11 3 9 9 7 	6 10 122 18 4 5 5 1 1 103 11 2 2 1 103 11 1 16 1 10 5 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	16 134 226 66 22 3 3 80 1 1 1 100 2 2 1 1 1 1 1 1 1 1 1	4 11 103 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15

SESSIONAL PAPER No. 25

V

Canada, via Ports in the United States, for the Fiscal Year ended March 31, 1912.

Occi	JPATI	ON.										I	Destin.	ATION.		
Tra	Clerk ders,	s, Etc.	N	ſiner	s.	vants.	Cl	Not assifie	eđ.	rovinces.				an,	• ,	mbia.
Males.	Females.	Children.	Males.	Females.	Children.	Peniale Servants.	-Males.	Females.	Children.	Maritime Provinces	Quebec.	Ontario.	Manitoba.	Saskatchewan.	Alberta.	British Columbia.
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 8 65 20 111 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	35 100 11	2 2 2 1 5 6 6 4		1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	101	2 3 3 3 1	2 3 3 1 2 1 2	6	2 3 8 3 3 2 7 7 17 10 11 2 2	1 24 1 20 8 12 5	12 454 3 39 524 36 62 1 7 46 24 67 166 600 2 13	5 999 5 	332 457 72 39 1 3 7 1 21 21 38 204 3 204 3 4	199 457 8 44 299 218 218 13 218 44 31 36	739 1 2 1 350 14 2 2 1 17
583	138	64	224	19	20	1,382	896	956	628	271	5,296	9,866	2,672	1,571	1,494	2,309

3 GEORGE V., A. 1913

Rejections, by causes, at ocean ports, from December, 1902, to March 31, 1912.

					FISCAL	YEAR.					
Causes.	1902-3	1903-4	1904-5	1905-6	9 months ended 31 March, 1907.	1907-8	1908-9	1909-10	1910-11	1911-12	Totals.
Abscess			10						1		2
Acute iritis				39	21	58	60	42	104	53	406
Adonitio										1	1
Alcoholism				3	3	1	5	8	3	2	25
Alcoholism						2				1	-
Arterial sclerosis								1	14		18
AsthmaBad character			19						• • • • • • •	1	18
Barber's itch			12							1	16
Blennorrhagia										1	1
Blepharitis		• • •	•••••		******				1		1 5
Bronchitis						1					1
Bronchitis. Cancer Cataract Choroiditis.								1			1
Cataract			1	1	1	3	1			1	5
Cirrhosis							1				i
Cirrhosis		1	4	2	4		1		13	3	31
Contract labour Contravention of Or-						23	• • •	33	28	3	87
der-in-Council								2	23		25
Convulsions								1			1
Corneal opacity					· · · · · · · · · · · · · · · · · · ·	17	6	** ****	10	****	61
Crippled			2	5	3	3	1		1	ĭ	18
Criminality Crippled Curvature of spine						2		4	2	2	10
Deafness Deaf and dumb. Defective sight. Deformity Degeneracy				4			1			·····i	13 13
Defective sight				3	14	12	17	2	15	3	66
Deformity			1								1
Degeneracy			}		2	{		i			2
Desertion									1		1
Diabetes Diseased gland					1						1/
Diseased gland Dislocation			• • • • •	• • • • •				4	5	1 2	10
Dropsy			1								1
Dropsy Eczema Empysema			1								1
						1	1				$\frac{1}{2}$
Empyema. Epilepsy. Erysipelas. Favus Fever		9	2	5	3	4		4	8	5	40
Erysipelas		10			2	1 5					1 46
Fever		16	(2			2		1	1	1
reatures								1			3
General debility		1		2			2	12		3	20
Gonorrhoea			1	1			1	1	1	2	6
Gout)			1
							1	::::::		. 6	$\frac{1}{6}$
Head tax			3	2	2	6	5	5	8	5	36
Hemiplegia											55
Hernia					4	8	3	$\frac{11}{2}$	20	8	
High temperature Hip disease								1	1		$\begin{array}{c} 7 \\ 2 \\ 2 \end{array}$
Hydrocele									2		2
HysteriaIdiocy.			1	3		3	1	2	1 5		$\frac{4}{16}$
Illegitimacy							1		ĭ		ĭ

SESSIONAL PAPER No. 25

Rejections, by causes, at ocean ports, from December. 1902, to March 31, 1912—Con.

					Fisc	CAL YE	AR.				
Causes.	1902-3	1903-4	1904-5	1905-6	9 months ended 31 March, 1907.	1907-8	1908-9	1909-10	1910–11	1911-12	Totals.
Imbecility				1	3		1	3		9	
Immorality					3	10			35		9
Indirect passage							4				17
Insanity		5	2	11	ī	19	13				9
Lack of funds			1			85	67	34	1,038		1 17
Lameness						(70)	01	94	1,055		1,47
Leprosy							1				
Likely to become pub.											
lic charges		49		73	57	292	66				1,71
Lucus Lucia	• • • • •		1			2	1		1	2	
Lupus				1	4		1		1		
Malamahalia			1		1						
Mentally deficient. Muscular atrophy Nephritis Nervous disease.	1		3	S	2	9	27 2	24	22	25	12
Muscular atrophy					1	3	2				
Nephritis										1	
No passport					30		1		ð		4
Not complying with					30	U	1	-		1	-1
regulations.							2				
Opium habit					2						
Paralysis			1	1 8	2		1	2	2	2	1
Pediculosis						1		* * * * * * * *			
Pityriasis rubra											
Plaumer					1						
Pneumonia		1									
Pneumonia								2	1		
Poor physique Potts disease	1			6	ā	31	6	13	41	10	. 11
Pregnancy					1	 5				5	1
Previously rejected							1		ĩ		1
Procuring					1	2				6	
Prostitution					8	18	1			4	3
Psoriasis							1	2	1	1	
Runaway from home Rheumatism				1	0					• • • • • •	
Rheumatism			1	4	1	1	* * * * * * * *				
Rheumatism Rickets Scapies Scapility Skin disease							2	1			
Senility		1		6	1	9	2 2	4	15	4	43
Skin disease									1		
Spinal disease					$\frac{1}{42}$	148			02		50
Sycosis					144	149	1 ±	74	85 1	86	500
Syphilis	1		2		2	1	1	5		2	1.
Tinea				1		2	5				
Trachoma	246	190	486	322	176	358			326	100	2,727
Tuberculosis			4	4	8	11	11	11	26	21	90
Ulcers Varicose veins			1			1			13	5	19
Venereal disease			1	*****		1	1		13	3	1
Weak stomach									1		j
Xeroderma		,								1	
Totals	273	274	611	524	440	1,172	509	1,515	2,210	972	8,500

3 GEORGE V., A. 1913

REJECTIONS, by Nationalities, at Ocean Ports, from December, 1902, to March 31, 1912.

					FISCAL	YEAR.					
Nationalities.	1902-3.	1903-4.	1904-5.	1905-6.	9 mos. ended March 31, 1907.	1907-8.	1908-9.	1909-10	1910-11	1911–12	Totals.
African Couth						ii)				1	1
African, South Australian			·····i			i	3		$\overset{\cdot}{\overset{\cdot}{\overset{\cdot}{\overset{\cdot}{\overset{\cdot}{\overset{\cdot}{\overset{\cdot}{\overset{\cdot}$	$\frac{1}{2}$	1 14
Austrian, N.E.S.	7	8	15	22	2	34	6	14	32	22	162
Bohemian Bukowinian		3		13		1 4	1 8	17	$\frac{2}{9}$	$\frac{1}{3}$	64 64
Croatian						1	4	6	15		28
Dalmatian						1					1
Galician Hungarian N.E.S	30 14		58 3	42	6	11 7	16 6	43 22	38 27	25 19	287 106
Magyar	14			**	2	1		1	10	$\frac{19}{2}$	16
Ruthenian			2	7	2	3		105	124	17	289
Slovak				3	3	$\frac{1}{2}$	2	4 23	1 5	10	47
Belgian			2	3		176	2	50	162	74	462
Bulgarian Chinese			9	8	1	21	1	9	105	40	194
Dutch			2			12	18 18	$\frac{1}{24}$	$\begin{array}{c} 7 \\ 22 \end{array}$	13	16 101
French German, N E.S.	13	6	10	10	6 5	33		29	72 72	$\frac{13}{22}$	$\frac{101}{220}$
Prussian			1								1
English	2	7	10	56	48	79		141	184	179	799
WelshScotch		1	2	2 5	1 7	30		$\frac{1}{25}$	$\frac{6}{26}$	$\frac{5}{28}$	19 154
Irish			ī	13	5	18		16	17	15	107
Irish West Indian					1	1		4	4	8	18
Jamaican			1	4	2	47	3	$\frac{1}{36}$	90	3 24	209
Greek Hebrew, N.E.S. Russian			3		ĩ	13			14		45
Russian		1	108		33	38	32	72	139	56	512
Polish Austrian Italian			4	1		1	1	i	3	7	1 17
Italian	6	8	69		29	65		169	404		1,014
Japanese			70	66	98	80		18	9	10	377
Newfoundland Polish, N.E.S		7	9	1	2	3			5	1	13 31
Austrian.			í		ĺ	10		75	51	11	158
German			5					1	2		10
Russian		5	58	11	9	$\frac{16}{2}$		42	31 18	9	187 26
Roumanian		9		2	1	10		27	31	4	90
Russian, N.E.S.	149				24	62		82	86		801
Finnish Doukhobor	16	3	10	11	4	8	8	45	19	11 5	135
Spanish						1	3	4	28		38
Swiss									5		5
Servian Danish			3			$\frac{1}{2}$	1	5 15	6 9		18 39
Icelandic		ii		i i	4		1	1		1	8
Swedish	5	1	2	4		8		23	34	8	91
Norwegian Turkish, N.E.S.		3		9	3	4		11 107	20	15 13	$\frac{72}{294}$
Armenian	3				2			132	147 60		299
Syrian	8	40		2		21	4	87	101	18	337
Arabian	7		07	1 17	17	63	$\frac{1}{2}$	13	6 20	$\begin{vmatrix} \cdots \\ 2 \end{vmatrix}$	15 161
U.S.A. Citizens. Negro			27	17	17	2		13	20		101
Hindoo				18	120	218		6		2	368
Mexican Corean				2					2		2
Olean				2							
Totals	273	274	611	524	440	1,172	509	1,515	2,210	972	8,500

Deportations, after having been admitted, by causes, from December 1902, to March 31, 1912.

	= ===										1
					FISCAL	YEAR.					
Causes.]			9 mos.		[1	<u></u>		Totals
Causes.	1902–3.	1903-4.	1904-5.	1905-6.	March 31, 1907.	1907-8.	1908-9.	1909-10	1910–11	1911-12	Totals.
4.1										, , 2	
Abscess					2	1	2	2	2	- 2	11
patients	4	3	1	4	35	26	21		18	17	129
Alcoholism					2	2	27		9		45
Anaemia Arteritis cerebral											1 1
Asthma.		1							2	1	4
Asthma Bad character							7	9			19
Blindness				1		2	3			2	8 5
Bright's disease		1	1			2	3				6
Cancer		î		1			2		1	2	
Cataract						1	1				2
Bad character. Blindness Bright's disease Bronchitis Cancer Cataract Catarrh. Chronicdysentery	1		1		1				1		6
Chronic skin disease				1			• • • • • • •	}		1	1
Criminality		1	8	1	12	68				242	
Curvature of spine					4	4	11			2	37
Spine		1		1	9	3	1	1			8
Cystitis Deafness						2					6
Defective sight Diabetes		1	1	6	4	5					28
Dislocations	9				1	1					3
Dislocations Drug habit						1					1
							1	6			7
Eczema. Epilepsy. Fistula. General debility. Haemoptysis. Heart disease. Hemorrhoids. Hernia. Hip disease.	6	4	2	6	6	15 1	1	8	10	10	89 2 226
General debility.	1	8	7.	18		60	97	27	1	1	226
Heart disease	2	ı î	3	7	3	5	13	4	3	3	44
Hemorrhoids	1										1 16
Hip disease			2				1		4	L	1
Idiocy	1		4								7
Hip diseaseIdiocyImbecilityImmoralityInjured		, 1	1	1	2	2	35	1		24	43
Injured						7	6	1		24	14
Injured Insanity Insomnia	1	5	5	12	53	110	113	95	121	133	
Insomnia Kidney disease		1				1	·····i				3 3
Malaria					[1		2			3
Mental weakness	7	8	2	17	20	43	1	9	17	9	
Muscular atrophy				1		[2	1	···· i	3 4
Nostalgia	1		1				1		1		$\frac{3}{2}$
Malaria Mental weakness Muscular atrophy Neurasthenia Nostalgia. Paralysis Pleurisy Poisoning (lead)		3	1	7		5	5	3	2	1	27
Poisoning (load)	1	1									$\frac{2}{1}$
Poisoning (lead) Potts disease Pregnancy							2				2
Pregnancy						1		3	2	2	8
Prostitution Public charge	1	1	19	3 2	28	309	0	1 0	10	9	11
Pustular eczema.							1,011			1	1
Rheumatism Sclerosis	8	7	6	11	10	29	15	8	2	7	103
Senility						8					22
Trachoma Tuberculosis			$\frac{2}{13}$	6	13	1 67	1 54			39	14 271
Vagrancy				2		21				84	253
Varicose veins	1	1		3	2	5	. 6			2	20
Venereal disease. Violation of Im-		1	1			4	4	2	2	2	16
migration Act.									12	8	20
Totals	67	85	86	137	201	825	1,748	734	784	959	5,626

3 GEORGE V., A. 1913

Deportations, after having been admitted, by Nationalities, from December, 1902, to March 31, 1912.

								===			
					Fiscal	YEAR,					
Nationalities.	1902-3	1903–4	1904-5	1905-6	9 months ended March 31, 1907.	1907-8	1908-9	1909-10	1910-11	1911-12	Total
African, South								4 4	 1 10	_{2i}	
ohenian ukowinian alician.			1	4	4	 5	3 4	i ii	3 10	1 1 6	
lungarian, N.E.S Luthenianlovak				1	1	3	1	6	 5 1	11	
hinese			·····i		2 1		1	8	6	6	1
rench rench erman nglish		····i		1 98	3 1 130		18 7	17	12 10	6	
Velsh	7		2 9	3 8	26°26	$\frac{2}{61}$	1 119	5 89	3	4 89	-, -
Vest Indian amaicanreek				1			3 1 32	2	11	2	
ebrew, N.E.S Russian Polish			1	1	2	2 6 1	11	2 1 1	õ	2	
Austrian palian apanese ewfoundland	1				1	13	244	15 1 8	1		
olish, N.E.S German Russian				1	1	8	3	1 1	3	1 i	
Austrian oumanian ussian, N.E.S		1			1			5	5	16	
innish panish wiss						2	$\begin{bmatrix} 3\\1\\2 \end{bmatrix}$	2	i	2	
erviananisheelandic	3		2	2 1 1	1	6		2		2	
wedishorwegianurkish, N.E.Srmenian.	8	$\begin{bmatrix} & \bar{2} \\ \dots & \end{bmatrix}$	1		1			3			
rian .S.A. Citizens			• • • • • •	2	8	37		1 119	7 169	1 256	
egroindoo							24	i	1	2	
Totals	67	85	86	137	201	825	1,748	734	784	959	5,6

DEPORTATIONS, after having been admitted, by Provinces, from December, 1902, to March 31, 1912.

	FISCAL YEAR.										
Provinces from which deports were sent.	1902-3	1903-4	1904-5	1905-6	9 months ended March 31, 1907.	1907-8	1908-9	1909-10	1910–11	1911-12	Totals.
Lower ProvincesQuebecOntarioManitoba.Saskatchewan.Alberta.British Columbia.Yukon Territory	18 3 46		67	3 27 19 88	$ \begin{cases} & 2\\ 41\\ 79\\ 66\\ 3\\ 4\\ 5\\ 1 \end{cases} $	14 136 383 226 19 24 23	907	24 97 378 97 19 63 56	349 121 23 55	13 186 348 174 35 95 108	$ \begin{array}{c} 1,381 \\ 2,477 \\ \end{array} $ $ \begin{array}{c} 1,378 \\ \end{array} $
Totals	67	85	86	137	201	825	1,748	734	784	959	5,620

Pamphlets and newspapers ordered for distribution during the year:-

implifies and newspapers ordered for distribution during the ye	aı .—
	Copies.
Last Best West	610,400
School maps	10,419
Immigration Act	30,000
Thunder Bay and Rainy River District	5,000
British Columbia 'Canada the Land of Promise'	20,000
Canada the Land of Opportunity (French)	100,000
Picture Post Cards	500,000
Immigration Facts and Figures	2,000
Classes Canada Calls For	200,000
Welsh Pamphlet	50,000
British Press Association Pamphlet	3,000
New Brunswick	30,000
Homestead Regulations (leaflet)	100,000
London Truth Pamphlet	50,000
Settling on Canada's Free Lands	200,000
Agricultural Tour Thro' Canada	250,000
Land Regulations in Canada	200,000
Prosperity Follows Settlement	150,000
Danish Pamphlet	5,000
Calendars	54.135
Nova Scotia.	20,000
What Irishmen Say of Canada	25,000
Domestic Servants	50,000
Opportunities in Canada	10,000
Country Called Canada	150,000
British Teachers Pamphlet	100,000
New or Northern Ontario (folder)	10,000
New Ortario Pamphlet	5,000
Le Canada et la France	8.000
Atlas of Canada (British ed.)	150,000
" (Census ed.)	100,000
Atlas du Canada (French)	20,000
Prosperity of Danish People in Canada	5,000
Five Thousand Facts About Canada	500
rive Indusand racts About Canada	500
NEWSPAPERS.	
	20.
Canadian Courier	20,000
Canada (London, England)	19,500
Der Norwesten (German)	52,000
British News of Canada (Toronto)	104,000
Canada Posten (Swedish)	24,000
Alberta Herold (German)	13,000
Canada Life and Resources	5,600
Canadian Hungarian	9,000
Daneberg (Danish)	9,000
Hernskungla (Swedish)	16,000
Canadian American	260,000
Venska Canada Tidnengen	24,000
Canada (Swedish)	24,000
Saskatchewan's Courier	19,760

Norroun (Norwegian)	19,500
Scottish Canadian	3,000
West Canada (Dutch)	60,000
West Canada (Flemish)	60,000
Logberg	35,000

During the year 439,135 pieces of mail were received and attended to in my office, as against 336,274 pieces in 1910-11, an increase of 102,861, or 30 per cent.

The outgoing letters numbered 130,366.

Your obedient servant,

W. D. SCOTT,
Superintendent of Immigration.

REPORT OF THE CHIEF CONTROLLER OF CHINESE IMMIGRATION.

DEPARTMENT OF THE INTERIOR, OTTAWA, April 25, 1912.

W. W. CORY, Esq., C.M.G.,
Deputy Minister of the Interior,
Ottawa, Ont.

SIR,—I have the honour to submit my report for the fiscal year ending March 31, 1912.

Acting upon a joint memorandum from the Minister of Trade and Commerce and the Minister of the Interior, His Excellency the Governor General in Council authorized the transfer on October 2, 1911, of all matters pertaining to Chinese immigration from the Department of Trade and Commerce to the Department of the Interior. The transfer duly took place, the service being but slightly interrupted although the change meant moving all files, records and documents pertaining to Chinese immigration from the West Block to the Canadian Building.

Although the work, as explained above, has been under this Department for a portion only of the fiscal year 1911-12, it is considered advisable to give statistics for the full year, as well as certain information covering previous years which may be valuable for purposes of comparison.

Fiscal Years.	Exempts.	Paying Tax.	Percentage of total arrivals admitted exempt.	Registration for Leave.	Total Revenue.
1886 1887 1888 1889 1890 1891 4892 1893 1894 1895 1896 1897 1898 1899 1900 1900 1901 1901 1902 1903 1904 1905 1906 1907 1907 1907 1908 1909 1909 1900 1909 1900 1901 1901	112 97 12 6 14 22 22 24 24 24 24 26 62 84 128 69 146 200 752 695 688 805 498	211 124 290 782 1,069 2,114 3,276 2,244 2,087 1,762 2,447 2,175 4,385 4,231 2,518 3,525 5,245 4,719 8 20 1,482 1,411 1,614 4,515 6,083	% 12·51 8·32 56 18 62 1·04 1·50 1·34 97 78 39 61 1·02 1·78 1·58 2·64 89·61 86·90 68·73 33·67 33·00 29·89 15·13 7·57	829 734 868 1,322 1,671 1,617 2,168 1,277 666 473 697 768 802 859 1,102 1,204 1,922 2,044 1,922 2,044 1,922 2,044 1,923 3,535 3,731 4,002 3,956 4,322	\$ cts. 11,693 00 7,424 50 15,694 50 16,694 50 40,808 60 56,258 00 107,785 50 166,502 00 113,491 00 105,021 50 72,475 00 88,800 50 123,119 50 109,754 00 220,309 50 215,102 00 178,704 00 364,972 00 526,744 00 474,420 00 474,420 00 43,094 00 746,535 00 713,131 00 2,262,056 00 3,049,722 00
	4,547	59,870	7:06	49,584	10,651,221 50

a On January 1, 1901, the Capitation Tax was increased from \$50 to \$100. b On January 1, 1904, the Capitation Tax was increased from \$100 to \$500.

The above figures of arrivals vary slightly from those given in general immigration returns owing to different standards which prevailed in past years. The Department of Trade and Commerce classed as newly arrived immigrants all persons of Chinese origin returning to Canada after an absence abroad of any period over twelve months, whereas the Department of the Interior did not classify as an immigrant, for statistical purposes, any person who had resided in Canada and who returned after having been absent less than two full years. The practice has been made uniform by adopting the standard of classing as a newly arrived immigrant any person of Chinese origin absent from Canada for over twelve months.

Victoria, Vancouver, Montreal and the head office at Ottawa are the only points where any great volume of work has been added to the Department by the taking over of the administration of Chinese immigration. At those points an increase in the staff has been necessary, but the employees have been kept at the lowest possible number compatible with efficient service.

Prior to October 2, 1911, it was customary to authorize a refund of head tax in the case of Chinese children who upon arrival registered as students, who attended an ordinary public school for a period of two years and who within two and one-half years after arrival applied for the same. Such refunds were made under Section 92 of the Consolidated Revenue and Audit Act which gives to the Governor General in Council power to remit any tax, duty or fine imposed for any purpose whatsoever when it is considered in the public interests so to do. This practice has been discontinued and now the legislation contained in Section 3, Chapter 14, 7-8 Edward VII

is enforced—that is to say refunds are granted only to persons of Chinese origin

'securing a higher education in one of the recognized universities.'

Notification has been issued to transportation companies and others concerned that on and after Ocetober 1, 1912, no Chinese will be registered out of Canada as provided for in Sections 20 and 21, Chapter 95, R.S.C., 1906, unless they can by the production of Chinese Immigration Certificates No. 5 or No. 28 satisfy the Controller before whom they appear that they are legally in Canada.

Notification has also been issued that on and after June 1, 1912, the Order in Council of May 9, 1910, (P.C.920) will be enforced against Chinese, and they will thus be debarred entry unless coming by a continuous journey from the country of their birth or naturalization on a ticket purchased therein or purchased or prepaid in

Canada.

While the two regulations above referred to were considered advisable as soon as Chinese work was taken over by this Department, it was felt that an immediate change might work considerable hardship in individual cases, and the date for enforcement was consequently placed sufficiently distant to allow for the dissemination of a knowledge of the proposed changes

Your obedient servant,

W. D. SCOTT,

Chief Controller of Chinese Immigration.

No. 1.

OPERATIONS IN EUROPE.

REPORT OF THE HIGH COMMISSIONER.

17 VICTORIA STREET, LONDON, S.W., May 1, 1912.

The Honourable
The Minister of the Interior,
Ottawa.

Sir,—I have the honour to forward, herewith, the annual reports of the various representatives of your department who are engaged in emigration work in Europe.

In the first place, I have to record some changes which have taken place in the personnel and the location of these agents during the year: Mr. G. H. Mitchell, who was the agent at Birmingham, was transferred to the High Commissioner's office, and his place was taken in Birmingham by Mr. J. K. Millar, of Saltcoats, Saskatchewan; Mr. A. F. Jury took over the Exeter agency which had previously been held by Mr. MacOwan; Mr. John McLennan, of Aberdeen, in turn replaced Mr. Jury at Liverpool; and Mr. W. B. Cumming went to Aberdeen. I have also to note that the Liverpool and Glasgow offices have been moved into premises better adapted to the purposes of the emigration work.

The list of emigration agents of your department, and their addresses, is now as-follows:—

- Mr. J. Obed Smith, Assistant Superintendent of Emigration, 11-12 Charing Cross, London, S.W.
- Mr. J. McLennan, 48 Lord Street, Liverpool.
- Mr. L. Burnett, 16 Parliament Street, York.
- Mr. J. K. Millar, 139 Corporation Street, Birmingham.

Mr. A. F. Jury, 81 Queen Street, Exeter.

Mr. M. McIntyre, 107 Hope Street, Glasgow.

Mr. W. B. Cumming, 26 Guild Street, Aberdeen.

Mr. John Webster, 17-19 Victoria Street, Belfast.

Mr. Ed. O'Kelly, 44 Dawson Street, Dublin.

Mr. D. Treau de Cœli, 23 Place de la Gare, Antwerp.

In so large a body of emigrants as that which goes to the Dominion, there must inevitably be a certain number of the less desirable kind, but all the evidence goes to prove that every care is taken by the agents to carry out the regulations of your department, and that, on the whole, the result has been satisfactory.

I would strongly urge the necessity for the supply of adequate quantities of literature suitable both as to matter and appearance, giving a substantial amount of information respecting the various provinces to enable readers to form an idea of their prospects, and as the actual facts concerning Canada are sufficiently attractive to anyone seeking a career in a new country, the advantages offered should be under, rather than over, stated.

As in former years, a number of delegates visited this country at the request of your department, during the past winter, for the purpose of giving personal interviews to inquirers, and some lectures. For the purposes of record I give the names and addresses of those about whom I was advised:—

Mr. A. E. Barnes, Bow Island, Alberta.

Captain D. C. Burk, 106 Shuter Street, Toronto.

Mr. S. Bushfield, Calgary.

Mr. J. Clark, Baldur, Manitoba.

Mr. J. Cowan, Calgary.

Mr. J. Faigey, Manitou, Manitoba.

Mr. J. Farrell, Forest, Ontario.

Mr. W. F. Grover, Minnedosa, Manitoba.

Mr. R. Green, Treherne, Manitoba. Mr. A. Jackson, Griswold, Manitoba.

Mr. J. Jones, 659 Toronto Street, Winnipeg.

Mr. H. E. Kyle, Oakville, Ontario.

Mr. W. M. Lawson, Gwenlyn Farm, Hayfield Station, Manitoba.

Mr. R. H. Lea, Manitou, Manitoba.

Mr. L. L. McPhail, Kenora, Ontario.

Mr. J. O. McConnell, Calgary.

Mr. J. McGill, Deloraine, Manitoba.

Mr. G. H. North, Pratt, Manitoba.

Mr. B. B. Olson, Gimli, Manitoba.

Mrs. A. Rankin, Vermilion, Alberta. Mr. T. Seaman, Edrans, Manitoba.

Mr. H. Turner, Miniota, Manitoba.

Mr. D. Sutherland, Ottawa.

Mr. G. Sexsmith, Carman, Manitoba.

Dr. Ninian Woods, Bayfield, Ontario.

Mr. T. Wilson, Whitewater, Manitoba.

Wide publicity continues to be given through the newspapers, and through a constantly growing number of periodicals, and trade papers, to the news cablegram which is sent to me by your department each week. In addition to the extensive circulation thus secured, the information the cablegram contains respecting the natural and industrial resources of the Dominion is regularly transmitted to the leading British financial institutions, as well as to a large number of firms connected with the Dominion by commercial or other interests, some of which include suitable items in

their business circulars, reports and bulletins. The Chambers of Commerce throughout the United Kingdom are also supplied and many of them distribute copies among their members. The service has been most valuable in helping to extend the general knowledge of Canadian affairs, and it has been a source of pleasure to note the success which has followed its initiation.

Your obedient servant,

STRATHCONA,
High Commissioner.

No. 2.

REPORT OF J. OBED SMITH.

11 AND 12 CHARING CROSS, LONDON, S.W., April 1, 1912.

The Right Honourable Lord Strathcona and Mount Royal, High Commissioner for Canada.

My Lord,—I beg to submit the following as my report of the Emigration Branch of the Department of the Interior, covering all the agencies in the British Isles and in Antwerp, for the year ending March 31, 1912, and have attached hereto the individual reports to myself from the various emigration agents of this branch, covering their work for the said fiscal year.

Since the last annual report was presented we have obtained more commodious and superior offices in Liverpool, and our agency address there is now 48 Lord Street, one of the most important trade thoroughfares in the city. Our Glasgow agency address has also been changed to 107 Hope Street, a most desirable portion of the city. During the year we have renewed the leases of the premises in Birmingham, York and Aberdeen, and attention has been paid to improving the attractive features of all the various agencies of the department.

The necessity for largely increased office accommodation in connection with our work in London, as mentioned in previous annual reports, together with the urgent need of increased stenographic capacity, in order to keep pace with the ever-changing conditions, not only continue to exist but are becoming daily more urgent. I am impelled to again point out also that our agencies are all under-staffed, and I trust that an early consideration of my recommendations in this regard may be possible.

Not only have the agents of the department been obliged to continue a course of strenuous self-education, in order to meet the growing demands for knowledge in detail regarding Canada, but in no other branch of the public service, I suggest, is there such a grave need for intelligent, sympathetic and individual consideration of the many thousands of human beings of all classes, grades and conditions that make up the general field from which Canada hopes to reap a harvest of desirable citizens, and the demand upon the agents of the department physically, intellectually and financially entitles them to the most favourable consideration of the department.

During the past year a party of twelve British journalists, representing different phases of agricultural political and financial publicity, visited Canada under my charge at the expense of the department, and I have no doubt Canada has already received from the publication of articles on the Dominion's resources and opportunities adequate compensation for the expense involved; and it is clear that the information these journalists obtained will be used for years to come in connection with their

work of distributing intelligence regarding Overseas Dominions. In this connection I had an opportunity, personally, of increasing my knowledge of conditions throughout Canada, and propose again suggesting the visit to Canada of several members of the staff in Europe, with the same object of keeping this end of the service actually in touch with the many incidents and changes that the extraordinary prosperity of Canada yearly involves.

So far as it has been possible with the limited staff at our disposal, we have continued the periodical visits of departmental officials to booking agents, in order to discover any way of improving their business to the general advantage of our propaganda, and this is a work which could with advantage be largely increased if officials were supplied to enable us to devote more time to that purpose. As it is, a very large proportion of the booking agents are never visited at all, and in that way our organisation is not by any means taking advantage of all the opportunities which arise for improvement in the work. Yet the result of the inspections thus far makes it abundantly clear that booking agents are business men, and will do business with that government and country which makes it worth their while to do so. My various reports during the last three years on the increased competition in the emigration field to Australia give details which need not be again referred to in this report, but the fact is too obvious to dispose of by argument or sentiment, that the large proportion of booking agents in the British Isles to-day consider it to their advantage to induce people to go elsewhere than to Canada, and to this must in a large measure be attributed the fact that the final figures for the fiscal year will not show so large an increase over the last as at one time was hoped. Some element of disadvantage to our work must be ascribed to the reports reaching here of unfavourable conditions regarding the crops of Western Canada in 1911. I urgently recommend the department to early consider the question of competition, which has unquestionably checked the steady and gratifying annual increase of figures in British emigration to Canada.

We have continued the policy of making the windows of our various agencies as attractive as possible, and have succeeded; and as far as possible with the material and grain at our disposal we have been providing the booking agents with grain boards on which there is a dressed design of grains and grasses. Some of the booking agents make very valuable use of these grain boards, and by increased inspectious among booking agents, above referred to, if our staff was sufficiently large, we could gradually increase this free exhibition of Canada's natural products.

It is within common knowledge that Canada receives through the public press on this side of the Atlantic an enormous amount of publicity, which, in part, must be ascribed to the prosperous and progressive conditions existing all over the Dominion, yet the need for judicious advertising, and consequent publicity, is so apparent that the appropriation available for advertising purposes should be largely increased in order to keep the Dominion abreast with other Dominions overseas, who are spending ten dollars to our one in securing British emigrants. Over seven hundred papers during the course of the year carried our advertisements, and others, besides these, receive each week nearly a column of Canadian news, specially prepared and edited by our own staff, some of which items are used extensively, and some only to a limited degree, but this is a branch of our work which can be largely stimulated and improved with more appropriations for advertising. In all statements from this branch a persistent regard for conservative facts and figures has been continued, so that the confidence established with the British people regarding official statements rests on a sure foundation.

Many hundreds of publications on this side of the Atlantic are continually scanned, and I am pleased to say that only on one or two occasions have we had to object to advertisements regarding Canada which have appeared in their columns. With the support of the Emigrants' Information Bureau of the Colonial Office, we have had no real difficulty in preventing a repetition of advertisements which might be deleterious to the welfare of Canada, or intending emigrants thereto.

During the past year two prosecutions were taken against men who had speciously advertised and taken money under false pretences from intending emigrants. After lengthy trials, and considerable justifiable expense to the department, convictions were secured. In one case the prisoner was sentenced to eighteen months' hard labour, and the other to three years' penal servitude. It is hoped that these results will prove a deterrent to others who may be presuming on Canada's prosperity as an opportunity for exploiting credulous emigrants. We purpose taking vigorous action against similar offenders in future. It is gratifying to note that in these cases the frauds happened before any of the intending emigrants had consulted an officer of this department, in accordance with the widely advertised advice to do so. I used the courtesies of the press, which have been made available by judicious consideration, to make the result of these two cases widely known throughout the British Isles.

After seven years' service one of our exhibition motor cars was relegated to the scrap heap during the past year, and a new one has been built and is now on the road. This, with the other remodelled motor car, and our horse exhibition waggons, will be utilised to spread from one end of the British Isles to the other a knowledge of Canada, not only in the market places but amongst the school children in and out of their schools from day to day.

In connection with the new motor car, we are arranging a lantern for illustrative slides on Canada. which can be utilized by our lecturer on the car in giving open air lectures in public places after dark, without the necessity of arranging at great expense beforehand such lectures in a building or public hall, and if this experiment proves successful and of value, it is my intention to suggest that the other motor car be likewise fitted.

The distribution of the school atlas to school children has been diligently carried out during the past year, and has been limited only by lack of supplies of the atlas in question. It is unnecessary to reiterate the great value of educating the children on Canada by a distribution of this atlas, and it is hoped that a very large supply will be available at an early date, so that this good work may be again taken up.

It was with great pleasure I recorded the fact in my last annual report that during the previous fiscal year the new settlers going from the old land to Canada were of an exceptionally high standard. This satisfactory condition has continued, and the returns of the British Board of Trade for the past year make it clear that while a larger number of British people went to Canada than to the United States in 1910, the percentage in favour of Canada so much improved during 1911, that one may dare to hope that with conditions in Canada fairly normal and prosperous we shall not again see the drifting of British people in large numbers to the United States.

During the fiscal year there were 371 sailings of steamships from the British Isles, carrying passengers to Canada. Figures are not complete at the present moment, but I am of the opinion that while the number of British emigrants to Canada for the first nine months of the last fiscal year will be largely in excess of the same period in the preceding year, the figures for January, February and March of this year will not be so gratifying. I trust the competition (which ought to be met) will not too seriously decrease our figures for the balance of this year.

As opportunity permitted the various agencies of the department outside London have been inspected from time to time, and improvements made where needed, and I desire to report, with great pleasure, the exceptional intelligence, care and industry shown by the various agents in their work during the past year. It is no easy matter to take care of all the business that comes to an office when each case we have to deal with is different from every other, and requires exceptional consideration and treatment; but when to this is added the necessity of leaving the office for four and sometimes five nights a week to give lectures on Canada, the remuneration paid to such agents of the department is not nearly, in my opinion, adequate for their services, and does not meet the demands on their financial obligation required to perform their duties

to the credit of Canada, and the welfare of the many thousands who leave their old homes to find a new one.

The practice of sending experienced practical farmer delegates from Canada to this side of the Atlantic has been continued, and with the same beneficial results as in previous years. The opportunity of discussing the question in person with a practical man cannot be too highly valued, and should be continued. In addition to the good work done by these delegates, tribute must be paid to the very large number of persons who have returned from Canada to visit their old homes over here. Such has been the demand for information that, without exception, all these home-coming tourists have been obliged to constitute themselves into amateur emigration agents, and great good would assuredly be the result of any proposition whereby many more could be induced to come year by year.

During the year our own officers have given 514 public lectures on Canada at the expense of the department, with success in every case. The various transportation companies have also given many lectures at their own expense, at which they were able to express opinions of a more or less purely business character, to their company's immediate advantage, than is possible in an official, and, therefore, impartial government lecture.

I desire very especially to repeat my previous recommendations regarding the increase in the number of agencies to cover the British Isles. The need for this increase is more urgent year by year, and a glance at the records on file in the department will show the enormous area that each agency, with a very small staff, attempts to control.

This office while controlling the European service has also charge of a very large portion of England, as one of the provincial agencies, and without additional accommodation and a largely increased staff more work cannot be done than is so willingly and efficiently performed by the entire staff at the present time.

The demand for literature has been encouraged by our officers as one of the primary means of interesting those from out of the great mass of the general public who may be thinking of changing their place of abode. Such has been this demand that we have been obliged to print nearly a million pamphlets here, pending the receipt of further supplies from Ottawa, and I would respectfully urge upon the department the fact that the supply of literature should be sufficient to give us a reserve to carry us on until additional supplies are received. We must have good literature and plenty of it if we are to continue our operations with success.

The inspection and approval of all charity aided emigrants is by the Immigration Act laid upon me, and with the assistance of the experienced officers of the department, who personally inspect every one, I venture to say we have been fair to those coming within this classification, and yet have never lost sight of the all-important fact that only those should be admitted to Canada who are likely to prove an acquisition thereto. During the past fiscal year we have had 1,365 cases (embracing 1,983 adults and 1,126 children under 12) presented for approval as charity aided emigrants. Of these I gave the necessary official consent in 1,052 cases.

In addition to inspecting out-going steamers from London, Liverpool and Glasgow, our agents have been called upon to inspect additional steamers at Belfast, London-derry, Southampton and Bristol, and this list will be increased next month by the sailing of steamers from Plymouth. A statement of each inspection by these agents has been forwarded to Your Lordship, and also to the department, and I would point out that this again throws a duty upon our agents, which, added to those already under their charge, makes it more obvious that our agencies over here are very much undermanned. With the increase of emigration, sailings have become more frequent, and as inspection is necessary, much more has been expected and performed by our officials than in previous years.

The regulations under which emigrants are admitted to Canada and the reasonable interpretation of the same have been effective in eliminating in an ever increasing degree the undesirable, and as I understand the policy of the department is 'quality rather than quantity,' the greatest possible care will be continued in future, to see that it is duly given effect to.

But, notwithstanding all the care taken by officers on both sides of the Atlantic, and all the wisdom displayed by the government and its officials, it is humanly impossible to prevent the getting into Canada of those who may have latent defects, and, therefore, while the number of deportations may be reduced to a minimum, they probably will never altogether cease. Deportations have decreased from year to year and now they are less than one-half of 1 per cent of the immigration. On the arrival of the unfortunates at a port in the British Isles, we have not failed to continue the humanitarian policy of seeing that they are placed with friends, or otherwise cared for. In this connection I desire to say that the transportation companies have very cordially met the suggestions of the department.

There are six independent steamship corporations carrying passengers to Canada, and one railway company not at present using their own steamers. All these seven transportation companies have actively continued their programmes along progressive although somewhat different lines, and have shown very commendable care in confining their operations to the policy laid down by the department from time to time, so that any doubtful case that has come before them has been submitted for the opinion of this office before booking takes place. This, it will be obvious to Your Lordship, is a splendid means of preventing the possibility of undesirables reaching Canada, and saves the disastrous loss which occurs to one who, having sold up his home here, is rejected at the port of landing in Canada. I wish to express the cordial thanks of myself and staff for the great assistance given by all transportation companies in this work of handling human beings in such large numbers, and under so many different conditions.

The most friendly co-operation with this department is happily continued by the British government's emigrants' information office, the local government Board and the Board of Trade; Canada owes a debt of gratitude to the first named in particular for the extensive and careful way in which the most exhaustive information regarding our Dominion is prepared and given out by their officials. It means more than some Canadians adequately understand to have officials of the British government able to verify the correctness of facts that our own officers may state.

During the past fiscal year 37,687 persons visited Charing Cross Office, London, to make personal enquiry with a view to emigration, and get a supply of literature. On many occasions it has been difficult to properly attend to this most important part of the business for lack of office accommodation. Indeed the grievous necessity for a separate department to which women and girls can be referred for private information at the hands of some of our skilled women officials, is one that I hope the department will take means to rectify, as there is no limit to the demand in Canada for respectable women of all classes, and there ought to be provided a separate room where women could have their questions answered by officials of their own sex.

The attractiveness of the windows in Charing Cross is again evidenced by the enormous number of people who stop and inspect what is shown therein. During the past fiscal year considerably over a million persons have so stopped and inspected our exhibits, and in a somewhat lesser but satisfactory degree our provincial and Belgian agencies have been telling the story of Canada's progress. This is, I submit, abundant evidence of the need for providing our agencies with a sufficient supply of exhibits of the natural resources and industries of Canada.

We received during the year 297 boxes of grain and grasses in the straw and threshed grains, also a supply of apples, all of which have been used to the best

advantage, but as there is no more advantageous method of advertising than to show in the concrete what Canada can do, greater supplies are recommended.

This office (and all the provincial agencies) has had to deal with an enormous mass of correspondence, and only by working many hours after the office is closed to the public has the staff been able to keep abreast of the work. The attachments to the files in the London office alone exceeded one hundred thousand during the past year. In addition, this office sent out 117,900 packages of literature.

Many of the provinces of Canada have supplied this branch of the service with their own literature, but again I have to report, the supply has never yet equalled the demand, except for a few days after the supply has actually come to hand. I understand the question of literature is engaging the attention of the department, and I can only repeat that the distribution facilities of the department here are quite equal to any quantity which may be sent to us for judicious use.

I have exceeding pleasure in stating the continuance of the most cordial relationship between the agents of the various provinces of Canada and this department, and altogether apart from any official co-operation, which is highly desirable and essential, there is no lack of that personal cordiality which is a splendid attribute to emigration work for the general welfare of Canada and the particular advantage of each province.

The remarks herein also apply to the agency in Antwerp, but I am of the opinion that the time has arrived when a separate agency for Holland should be established. I would again urge early consideration of my previous recommendations, that an agency for emigration work in Scandinavia be opened in Copenhagen, which has already been reported upon to the department in detail.

In conclusion, I desire to offer to Your Lordship my sincere personal thanks for the kind consideration of difficult questions arising from time to time, and feel that the occupying of Your Lordship's attention and time on these matters has been amply repaid by the fact that harmony and good will have been continued, and the welfare of Canada enhanced.

Your obedient servant,

J. OBED SMITH,
Assistant Superintendent of Emigration.

No. 3.

REPORT OF A. F. JURY.

81 QUEEN STREET, EXETER, March 30, 1912.

The Assistant Superintendent of Emigration for Canada,
London.

SIR,—In presenting my fifteenth annual report, though my first as agent for the west of England, it affords me satisfaction to note the increased results following the efforts of the department to induce emigration from the United Kingdom to Canada, both as regards quantity and quality. The results would have been even better, however, especially from this part of England, where farming is largely pastoral, and only a limited number of the natural increase of the rural population can be employed upon the land, had all those desirous of emigrating to Canada possessed the necessary money

to do so. There are no other great industries as there are in the Midlands and the north to absorb the surplus, and wages are so low in consequence upon the farms, that only a small proportion of the agricultural labourers, especially if married, can save the money to pay their fares to Canada. I have come to the conclusion after years of thought upon the subject, the reading of Canadian newspapers, especially those devoted to the interests of the farmers, that the great dearth of farm help in Canada is retarding the development of our greatest industry, and that the time has arrived when a departure should be made from present methods, to supply this long felt and ever increasing want. This naturally leads me to suggest a means by which the department can meet and overcome the difficulty by assisting the supply that is here to get to the demand in Canada. I do not think this problem is unsolvable by a modern utilitarian government entering the field with a practical scheme either of collecting fares advanced by farmers who are prepared to do so or advancing fares itself on a selfsupporting basis to farm labourers. I would respectfully suggest that a start be made by notifying farmers, by circular, who require help, and who are prepared to engage men by the year at the current rate of wages in their district, and are prepared to advance the ocean fare or part of it, and who notify the Department of the Interior of their requirements, that the department agree to deliver such experienced agricultural labourer or labourers, as they are willing to advance the fares for, to nearest distributing point to the farmers' home, the farmers making such advance to have the legal power, according to a duly signed contract, to deduct five dollars per month from said labourer to whom such advance has been made, until such advance has been paid in full. The farmer delegates, with the assistance of the government agents in this country, could select the men, and the farmer delegates could take them to their respective districts on their return to Canada. This would meet the demand during the very early spring, and later in the season it could be done by the government agents, or by officials especially appointed for that purpose. In no case should farmers be supplied who are not prepared to pay the full current rate of wages, and none but experienced farm hands should be handled by government officials. I think by this means the reasonable demand for farm help could be supplied, and by getting the purely country-bred men, they would not only go upon the land, but would stop there. most of them ultimately becoming farmers, developing the virgin soil, and in a short time become consumers of the product of the urban district, thereby causing a demand for the labour of the city workman. I know this is open to the stereotyped objection, that action of this kind is outside the proper sphere of the government, but the proper sphere of modern governments is utility, and this not only seems useful, but seeing how the Canadian farmer is hampered in proper and profitable cultivation of his land on account of his inability to secure sufficient supply of labour, a necessity. If this system failed to reach the reasonable demand for labour on the land, then I would suggest the government advance the fares of agricultural labourers on a self-supporting principal, of charging the emigrants 5 per cent interest on the money advanced. and making the farmer responsible for the collection of the money, to be paid to the local postmaster for the government. Most of the States of the Australian Commonwealth, which is one of our keenest competitors for immigrants, have from time to time resorted to assisted passages for farm labourers. The State of New South Wales is at present offering the following:-

'In the case of farm hands the sum of £6 must be lodged as a deposit. In special cases farm hands may deposit £3 only. In every case the deposit (less £2) may be refunded by the Immigration and Tourist Bureau in Sydney immediately upon arrival of the passenger, the remainder of the deposit money being refunded three weeks after he has been satisfactorily employed as a farm worker in New South Wales. A domestic servant must deposit the sum of £2 which is returned to her three weeks after she has been employed as a domestic servant in New South Wales to the satisfaction of the director of the immigration and tourist bureau.'

I would not suggest under any circumstances that the above scheme should apply to domestic servants, the economic conditions being entirely different, the latter being a class employed by people who should be in a position to supply their wants through the various agencies that exist for that purpose, but there is not an agricultural labourer class in Canada, the hired man of to-day is the farmer of to-morrow. An adequate supply of farm labour is of national importance, the most important factor in national development; domestic servants are often only a matter of additional family comfort. My excuse for suggesting this departure from the usual methods is not only the necessity, but the urgency of the case referred to, and I trust it will receive the consideration from the department that its importance deserves. If in any of the provinces there is a law making contracts of labour when made outside the respective province null and void, such acts could, in my opinion, be amended by common consent to exempt farm labourers.

The work of the past year has followed so closely the lines of the last fifteen that no special mention is required other than to point out that the changed conditions under which government lectures have been delivered, have caused a large amount of annoyance to all concerned, coming into operation as they did at a time when most of the lectures for the season had been arranged through the local booking agents. The prohibition of the name of the local steamship agents appearing in connection with government lectures, coupled with the fact that they have been very inefficiently advertised by the department there, has caused a considerable falling off in the attendance. and I am convinced that the best and cheapest method of arranging successful lectures is through the most energetic local booking agents. But I think the time has arrived for a departure from the present system of lecturing. The delivering of lantern lectures has been followed for the last fifteen years, except when the government agents have been able to borrow cinematograph films from some of the transportation companies, which under the new regulations we will be unable to do, and I would suggest that the department supply their agents here with films, or that the lecture propaganda be very considerably curtailed. I consider the lectures without films in this district have been a waste of money, and that the same amount of money spent on judicious newspaper advertising would have produced much better results. The conditions in regard to lectures have materially changed during the last fifteen years; previous to that the steamship companies did very little lecturing on their own behalf, and that little was discontinued when I took up the work. Now most of the companies have their own lecturers, and films, and there is a considerable amount of overlapping. I shall be much surprised if during the ensuing lecture season every steamship company running to Canada does not have its own lecturers, and if we do not have moving pictures at government lectures, we shall be unable to obtain an audience, without a large expenditure to advertise them, which money would be much better spent in newspaper and poster advertising, and the agents left free to spend their time to better advantage than lecturing to fifty or sixty people, most of whom are generally too old, or too young, to emigrate to Canada.

I would again impress upon the department the importance of sending to this country a good supply of fruit, corn on the cob, tobacco and hops for exhibition in the windows of the government offices, and at agricultural shows, to show the British public that there is something else raised in Canada besides ice palaces, and to illustrate the agricultural capabilities of the Eastern Provinces and British Columbia. I am assuming that the usual supply of grains and grasses will be sent from the Prairie Provinces.

The correspondence received for this year numbers 8,035, letters sent out 7,860; bonus applications forwarded to Ottawa 3,253; the latter showing an increase of 429 on last year.

Your obedient servant,

A. F. JURY,
Canadian Government Emigration Agent.

No. 4.

REPORT OF W. B. CUMMING.

26 GUILD STREET,

ABERDEEN, March 30, 1912.

J. OBED SMITH, Esq.,
Assistant Superintendent of Emigration,
London.

Sir,—I have the honour to submit the report of the Aberdeen office for the year ending March 31, 1912.

I took charge of this office on May 1, 1911, so that during the first month of the fiscal year my predecessor was in charge.

The plan I adopted during the year was to visit the different feeing markets, to which farm servants came to meet farmers for engagement. My presence at these markets was known and advertised at each point by the booking agents, who arranged an interview for me with any farm servant who was thinking of going to Canada. In this way, information was imparted to inquirers without prejudicing the large-farmers against our work.

Later on, in the months of July and August, we attended agricultural shows, where we had out tent, with samples of grain, both in straw and in bags, which we showed to visitors, and at the larger shows, we had our Canadian wagon in addition to the tent. At Inverness, where the Highland show was held this year, we had a twenty-foot space nicely decorated with Canadian grains and fruit.

In October we began to deliver lectures, accompanied by lime-light views illustrating Canada. We began on 23rd October and ended on 13th March, and between these dates we delivered 77 lectures, which were given, not in towns or cities, but entirely in the rural districts, the great majority being held in school-houses. These lectures were well attended, and much interest was shown in them.

The records in this office show that from January 1 until December 31, 1911, there were 3,804 applications made for bonuses. For the corresponding period the previous year there were 3,042, thus, in the year 1911, we are 762 ahead.

Taking the first three months of 1912, the number of bonus applications is not quite up to last year. The decrease in this district is owing to several causes, among which we may mention:—

- 1. Some of the drastic rules made by the Steamship Conference regulating the passenger traffic between Great Britain and Canada, so irritating to many of our most enterprising booking agents,—the secretary of this Conference becoming so obnoxious that some of these booking agents ceased to advertise Canada, and emphasized Australian emigration to evade the restrictions, and as a consequence Canada only got their indirect work for some time, or until several of the individual shipping companies forming this conference wrote these shipping agents, advising them that the secretary of the conference had overstepped his instructions. There are no restrictions relating to Australian bookings.
- 2. Another element which has a strong tendency to lower our numbers is the fact that the Australian and New Zealand governments are paying a much higher bonusfor their emigrants and are also holding out 'assisted passages' as an inducement, the offer of which is gladly accepted by many unable to pay the passage money themselves.
- 3. The present coal strike is materially affecting those who are undecided, whether they will go to Canada or not.

4. A further element entering into our work is the fact that our field is limited, that is to say, we appeal only to farmers, farm servants, and domestic servants, and while we believe there is quite a number of them who will yet go out to Canada, the number comprising these classes is comparatively small. On the other hand, there is a large number of people engaged in other enterprises, who would go out to Canada to the land, if circumstances were such that they could. We have in mind carpenters, blacksmiths, stonemasons, and clerks who have gone out to Canada on to the land, and have made excellent settlers. If an inducement could be made whereby booking agents could secure bonuses on such, we believe that our numbers would be increased materially. The general sentiment throughout Scotland is in favour of Canada, but the emigration propaganda instituted by our sister dominions in Australia and New Zealand is appealing to a large number. I cannot close this report without bearing testimony to the persistent and faithful work rendered by Mr. Hugh Mc-Kerracher. He has continued his work, travelling through the country with horses and van, giving short addresses, and distributing literature to the children as he passes country schools, and in villages where people assemble to look at the Canadian grains. In addition to these, he has delivered during this winter, over 40 evening lectures, and at these, shown lime-light views of Canada. In this way, he is reaching agriculturists it would not be possible to reach in any other way.

Your obedient servant,

W. B. CUMMING,

Canadian Government Emigration Agent.

No. 5.

REPORT OF M. McINTYRE.

107 HOPE STREET,

GLASGOW, April 1, 1912.

J. OBED SMITH, Esq.,
Assistant Superintendent of Emigration.
London.

Sir,-I beg to submit my report for the year ending March 31, 1912.

The emigration to Canada from the south half of Scotland for the year, everything considered, has been as large as one could reasonably expect. While last year was a record one, the beginning of this looked as if it were going to exceed it. There have, however, arisen during the last half, incidents which have had a deterrent effect. One of the first things was the dockers' strike. Sailings were interfered with to such an extent that a certain number changed their minds altogether (Canada may possibly get these at some later date) and during the last six weeks, which is always the heaviest season, things have been in such a turmoil on account of the coal strike, with trains not running and sailings in doubt, that people have not known what to do, so have largely done nothing. Works being suspended, some have not had the opportunity of getting together the necessary amount of money to move.

Taking the whole year, compared with last, we have done very well in the agricultural and domestic servant classes. My reasoning of this is from the bonus claims I have received, which is the best means I have of forming an estimate. Last year I received 3,958 claims, and this year I have had 4,237, which shows an increase of 279, from which one can see there is very little difference. Still, while

we have had only a few more bonus-earning people, there have been considerably more of that class leaving Scotlaud, and some of them most excellent emigrants, but these have gone to New Zealand and Australia. Australia is a very mighty competitor of Canada with respect to the developing classes. As near as I can learn, there are two chief factors to induce emigrants to go to Australia as against Canada. The first is the assisted passage. There are many of the agricultural and domestic servant classes here, who find it impossible to save enough to buy a ticket, and when they are offered good wages and free passage, that, of course, takes them. The second factor is climate. Canada has been mentioned so often on this side of the Atlantic as the 'Land of Snow' and severe frost, that when Australia is always spoken of as having such a beautiful, warm climate, that weighs very considerably with those having the necessary capital, and of course, Australia is making all it can of climate in appealing to the people.

In my lectures this season, I have given a great deal of attention to Canada's climate, in an endeavour to give the people a better conception of what it really is like.

Another thing telling somewhat against us, is that the booking agent now has a slight advantage in booking a passenger to Australia over Canada, and while some of the agents are adhering closely to Canada, there are others who think only of which booking is going to give them the highest commission, and advise their clients accordingly.

As heretofore, during the winter season I have given a series of lectures presenting Canada's opportunities for the agricultural and domestic servant classes in as true a light as I possibly knew how. I have also endeavoured to make use of the delegates where their services would prove most beneficial. The season in which these delegates are of greatest use in this district is from the beginning of November to the end of March.

During the year 81 steamers with passengers have been inspected, and all vessels arriving at this port with rejections or deports have been met. Sixty-nine deports have been looked after on arrival, 41 of whom belonged to this district. Letters received numbered 13,056; those sent, 9,063, and the number of interviews was 7,428. I have this year followed my practice of several years, of going to different places to interview people, when notified by the booking agent that he had a number seeking information he was unable to supply, and have worked to the best of my ability in carrying out the various schemes for promoting the emigration of the right classes.

Your obedient servant.

M. McINTYRE.

Canadian Government Emigration Agent.

No. 6.

REPORT OF E. O'KELLY.

44 DAWSON STREET, DUBLIN, March 30, 1912.

The Assistant Superintendent of Emigration, London.

Sir,—I beg to submit my report for the fiscal year ending March 31, 1912.

My work varies little from one year to another; so much of it being the routine of attending to correspondence and callers at office, visiting steamship agents, urging them

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to greater attention to their booking business, keeping them posted in any change likely to help them, and reporting to London on the condition of each agency so visited. I keep the agents well supplied with copies of our official publications; and in the past year the department supplied specimens of grain in the straw, and grasses meatly placed on boards to those agents who could show them to advantage. I consider this visiting of steamship agents a very important part of the duty of the Canadian government agent.

During the agricultural show season I attended a number of such shows with an attractive exhibit of Canadian products, and a supply of literature for visitors. At those shows, I can truly say, the Canadian stand was in almost every case the best patronized by the public, whose questions every succeeding year show their increased interest in, and knowledge of the Dominion. At all the shows attended by me in the past year I was most ably assisted by Mr. S. R. Hosford of Edmonton, who emigrated from county Cork a few years ago, and afterwards induced his father to sell his valuable farm in that county, and settle with his family in Alberta. This fact gave considerable weight to Mr. Hosford's statement in favour of farming life in the Dominion. Mr. Hosford worked in my district from the beginning of March, 1911, to end of August, attending stock fairs and country town markets, where the farmers gather in large numbers, talked Canada to them, and gave them copies of our literature with which I had him always well supplied. I found Mr. Hosford a very successful delegate, partly, no doubt, because of his knowledge of the country he was working in, as well as his knowledge of the country he was working for.

I have also had the services of delegates J. O. McConnell and William Lawson, both capable men, but their time with me has been too limited and too close to date of

this report for me to judge with any accuracy of their success.

Our standard advertisement is appearing in fifty newspapers published and circulating in my district, and brings a large proportion of the callers and correspondence that come to this office. Copies of cablegrams from the Minister to Lord Strathcona dealing with current events in Canada reach this office every week, and are displayed in office windows, where they attract a good deal of attention and enquiry in the office. Politics still holding the attention of the people in the Midlands and South of Ireland to the exclusion of almost every other subject, our lantern slides have only been used five times at lectures; one of which was given by delegate McConnell in the county Dublin.

The number that left for Canada in the past year exceeded that of the previous year, and represented a more substantial class. Emigration to Canada from the South and West of Ireland suffers greatly by reason of the poverty of the people in the rural districts, which causes many to avail themselves of the free and assisted passages to Australasia who would, with like facilities, go to Canada. The United States also benefits immensely by having direct communication with Queenstown, county Cork, and advertising that fact at all the railway stations south of Dublin. The ports in Ireland at which Canadian liners call are Belfast and Londonderry, both situated in the north, so that emigrants for Canada have either to cross to England to embark, or take a long and expensive rail journey to those ports.

As long as Ireland continues to be a large producer of the human race emigration must take place, as the various Land Acts passed since 1881 for the benefit of tenant farmers large and small, prohibit the sub-division of the farms held under those acts.

	Nu	ımber.
Number of letters received		4,182
Number of letters written		4,759
Number of callers at office		2,521
Number of atlases with circular letters to teachers		2,320
Number of wall maps to teachers		629
Number of atlases to pupils on application		1.886

Number of deports dealt with	
Number of booking agents reporte	d on
Number of shows attended	

Viz.:-

Cork spring show, April 4 and 5.
Cork summer show, June 7 and 8.
Bandon show, County Cork, June 15.
Clonakilty show, County Cork, June 27.
Kilkenny show, July 4.
Waterford show, July 19 and 20.
Lismore show, County Waterford, July 26.
Carlow show, August 1.
Clonmel show, County Tipperary, August 3 and 4.
Tipperary show, August 9 and 10.
Athy show, County Kildare, August 15.

Your obedient servant,

EDWARD O'KELLY,

Canadian Government Agent.

No. 7.

REPORT OF JOHN WEBSTER.

17 AND 19 VICTORIA STREET, Belfast, April 1, 1912.

J. OBED SMITH, Esq.,

Assistant Superintendent of Emigration, London.

Sir,—I beg to submit my annual report for the year ending March 31, 1912:—

My time has been occupied with official duties; visiting steamship agents at their offices; making exhibit of Canadian products at agricultural shows; lecturing during winter season; supervising the work of the travelling wagon; and arranging itineraries for the various farmer delegates under my direction.

	Number.
Callers at office	5,676
Letters received	3,798
Letters outgoing	. 6,069
Atlases distributed	2,800
School maps distributed	
Bonus claims submitted, on 1,825 emigrants	1,641

I have called on the principal booking agents in my district, with a view to seeing what they are doing, and stimulating them to fresh efforts. In some small places I find two and sometimes three agents representing the same line, which is by no means an advantage.

The calling of some of the Canadian Pacific steamers at Belfast, is much taken advantage of. By the last ship at Belfast, on March 15—an early sailing—212 left

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from my district. The next boat will secure a very large number. The fine ships of the Allan line, calling at Moville, take a fair percentage of North of Ireland emigrants. As, however, the best ships do not call at Ireland many of our emigrants make Liverpool their port for departure.

At important agricultural shows, we make display of Canadian products. At these fixtures we find a good opportunity to meet farmers and farm labourers, and discuss with them the opportunity which Canada offers, should they decide to emigrate.

The shows attended were:-

Royal Ulster show, May 24, 25 and 26. Portadown, June 1. Dungannon, June 7. Antrim, June 9. Coleraine, June 13. Newtownards, June 15. Londonderry, July 4 and 5. Ballymoney, July 18. Cookstown, August 31.

For these shows I would respectfully suggest that we should be supplied with more varying material than has heretofore been the case. In addition to grasses and grains, samples of birds, fish, small animals, timber, minerals, and fruit, would be of great advantage. These, after the shows, would make a continual display in our office windows. Ulster being the hub of the linen industry, flax in straw is an exhibit which is examined with great interest by farmers. If the straw is short, it comes in for severe criticism. Let the flax be as long in the fibre as possible.

During the winter I delivered fourteen illustrated lectures. Without a doubt, lecturing is a fine medium towards spreading the light. The slides at our disposal,

have been lent for fifteen occasions.

The exhibition wagon, in charge of Mr. Geo. Robinson, has accomplished good work, it being kept steadily on the road during the open season. Through its medium a useful and extensive distribution of our literature is made amongst agriculturists, its itinerary being arranged so that, almost daily, it visits a town or village in which is being held the weekly market or monthly fair, where of course, the farmers assemble in large numbers.

Last spring, on instruction from the department, our Mr. John Mullan visited Canada, where he spent 9 weeks; the information he acquired, as a result of the trip,

has very materially added to his value in my office.

Amongst the press editors who last summer accepted an invitation from the department to visit Canada, were Mr. H. R. H. Baird, and Mr. T. Moles, proprietor and editor respectively of the *Belfast Evening Telegraph*. Since their return home, long illustrated articles dealing with each province have, at intervals of a week, been appearing in their papers, they were most interesting and well put together, and owing to wide circulation of the paper, attracted a great deal of attention.

During the last couple of months, several farmer delegates have been placed under my direction. For them I have arranged itineraries where I considered they could accomplish the best results. At present I have two delegates and am about arranging

work for two others, who have been advised to me.

It is a satisfaction that, notwithstanding the aggressive policy of the Australian government, and that there is a considerable falling off in Irish emigration to the United States, we can report a steady annual improvement in the movement from Ireland to the Dominion.

Your obedient servant,

No. 8.

REPORT OF J. K. MILLAR.

139 Corporation Street, Birmingham, March 30, 1912.

J. OBED SMITH, Esq.,
Assistant Superintendent of Emigration,
London.

Sir,—I have the honour to submit report of the work of this agency for the year ending March 31, 1912.

It was on July 13 that I arrived in Birmingham and took charge, succeeding Mr. G. H. Mitchell.

I am pleased to report that there has been a large emigration to the Dominion from this agency during the past year. I was afraid that it would be a difficult matter to reach the record of 1911, when bonus claims on 2,264 people were forwarded to Ottawa, an increase of over 100 per cent upon the figures of 1910, but I find for the year just ended that bonus claims on 2,269 people have been forwarded to Ottawa, being a small increase of 5 over the previous year.

I consider this a good showing as the governments of Australia and New Zealand conducted a very energetic campaign in England last year for the purpose of turning the flow of emigration to their shores, and a large number of a very desirable class emigrated to Australia and New Zealand through their efforts. Almost every booking agent I have called upon has the same story about the many enquiries they have had about conditions in Australia, and the numbers they have booked. Many people in England have an idea that the winter in Canada is so severe that it is hardly possible to exist, and I consider that fact has a great deal to do with the question of whether they will go to Canada or Australia. Another inducement has been the assisted and nominated passages—for a time an emigrant could get to Western Australia by paying £2.

The class of emigrant that has gone to Canada this year from this district hasbeen of a very desirable kind, and I am sure will do well in the land of their adoption.

During the past year I attended the principal agricultural shows in my district with my stand, and at each place large numbers of people came and inspected our exhibit, and made enquiries about conditions in the various provinces of the Dominion. The shows attended were:—

Leek. Warwickshire. Welsh National. Derbyshire. Leicestershire. Staffordshire. Shropshire and West Midland.. Northamptonshire.

The following one-day shows were also attended:-

Loughborough. Oswestry.

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Market Drayton.
Ashby-de-la-Zouche.

There was a large quantity of literature distributed at these shows. At many of the before-mentioned shows the Commonwealth of Australia had a splendid exhibit of all the products that are grown in the various parts, and I am sorry to state that my exhibit did not compare at all favourably with it. My exhibit, although very good (as-

far as it went) consisted only of the various kinds of grain (both in bulk and straw), and grasses grown in the Dominion. Many of my visitors asked if Canada only grew grain, and mentioned that Australia must be a better country to go to as from the display at their stand they grew almost everything.

During the past year I gave, assisted by Messrs. A. O'Kelly, F. Chapman, and F. Campbell, from the London Office, 97 lectures throughout this district. These were given principally in the rural parts, and were without exception well attended, and much interest was manifested in the various views of Canadian life. In addition to the above-mentioned, several steamship companies gave a number of lectures in this district, and I supplied a set of lantern slides to many private parties who were giving a lecture on Canada.

I had the services of several farmer delegates during the past winter, and they were kept employed visiting the different booking agents, and giving advice and information to intending emigrants. The delegates allotted to me were good men, and did good work. I received many letters from booking agents stating how well they were pleased with the delegate's visit, and the business that resulted.

There has been a large amount of money invested in Canadian securities, land, &c., by people in this district during the past year. At the present time I know of a Birmingham gentleman who is in Canada representing a syndicate for the purpose of investing money in town property, and generally looking into the prospects Canada offers to the investor. If his report is favourable a large amount of Birmingham capital will be invested in the Dominion.

My time has been fully occupied attending to the correspondence of my office, personally interviewing parties, and calling upon the booking agents in my district. The number of communications received during the year was 10,028, those sent out 6,700, and the callers 6,876. The number of letters, &c., received, and sent, is not so large as last year, but the number of callers increased by 881.

Your obedient servant,

JAMES K. MILLAR, Canadian Government Emigration Agent.

No. 9.

REPORT OF JOHN McLENNAN.

48 LORD STREET, LIVERPOOL,

March 30, 1912.

J. OBED SMITH, Esq.,
Assistant Superintendent of Emigration,
London.

SIR,—I have the honour to submit the annual report of the Liverpool Office for the year ending this date.

The year's work has resulted in perhaps the largest emigration in the history of the district, but being the first year of my work here, I am not able, personally, to make comparisons, except as the same may be gathered from reports on file, and also from reports from steamship companies and their agents. I am of the opinion, however, that in addition to the increased number, the restrictions have resulted in materially improving the quality of the people going to Canada.

I have followed the practice that has been in vogue for many years in having an exhibit at the leading agricultural fairs throughout the territory during the summer months, and lecturing in winter. A large volume of correspondence has been attended to from the office, replying to enquiries that have come from various sections.

The strenuous efforts of the various states of the Australian Commonwealth are beginning to bear fruit, and they are now formidable competitors in our work. As has been referred to in my previous reports, the free and assisted passages offered by some of the States, are of such a character that it is impossible for us to compete with them. Besides this, some of the States notably Victoria are offering land on very favourable terms and advancing, from State funds, large sums of money which will enable men with very limited capital to begin operations on an extensive scale. Whether these measures will have beneficial results must remain for the future to determine, yet the offer is so generous that it would not be wise for any of our governments to make similar propositions, and they are exceedingly tempting to the prospective settler.

Besides the large numbers who are attracted to Southern Pacific Dominions, we are now draining heavily upon the source of supply. Agricultural labourers are getting exceedingly scarce, and the last census shows that the population of practically every agricultural section in the Kingdom has diminished in the past decade. It is also reported in large industrial centres that factories and mills have some difficulty in getting all the competent help that they require here. These facts inevitably lead to the conclusion that we cannot hope to maintain the large figures of emigration attained in the past year. If we are to successfully cope with the Australian States we must use, not only the measures that have been successful in the past 10 or 12 years, but, in my judgment, must introduce some new measures.

I am glad to see that the governments of several of the provinces are taking active measures to give settlers better opportunities within their borders, and I confidently

expect good results to follow such measures.

	N	vumber.
Communications received		21,138
Communications sent		19,758
Claims for bonus received		3,300
Callers at the office re Emigration		6,091

Your obedient servant.

JOHN McLENNAN.

Canadian Government Emigration Agent.

No. 10.

REPORT OF L. BURNETT.

16 PARLIAMENT STREET, York, March 30, 1912.

J. OBED SMITH, Esq.,
Assistant Superintendent of Emigration,
London.

SIR,—I have the honour to submit my report for this district for the year ending March 31, 1912, and in doing so I may say that the interest taken in Canada and the emigration thereto of the agricultural class, is increasing very rapidly, and I have every reason to believe that it will increase still more in time to come.

Although other fields are open for the class of emigrant Canada requires, it is needless to say that Canada offers the best opportunities to the man or woman who is desirous of succeeding. The depression in trade in this country is compelling the person who wishes to succeed to seek other markets for his, or her, labour, and Canada being Britain's nearest Dominion, they naturally give preference to her and listen to Canada's call before that of the more distant Dominions.

Whole families are continually leaving for the 'Golden West'-some of them

ranging from six to fourteen in number.

All the leading agricultural shows, markets and fairs in this district have been visited as in previous years, and there has been a great increase in the inquiries made at the different places regarding Canada. Lectures have been given throughout the district by farmer delegates and myself, and the interest taken in them has been far greater than hitherto. Farmer delegates have also visited the principal centres to give advice to the intending emigrant and in several cases application has been made for the visit to be extended.

Applications from people who have not sufficient money to pay their passages are innumerable, but a good many have taken advantage of the offer of assistance from the various provincial governments. It is again pleasing to note that a great many people who have been in Canada, have visited this district during the winter months, and the impression left by them on their friends, has been the means of many others going, although there are many who do not realize that Canada offers them a far better opportunity than they may hope to find here.

There has again been a steady increase in the business at the office, and the demand for literature is increasing rapidly—every effort being made to get it distri-

buted amongst the agricultural classes.

Your obedient servant,

L. BURNETT,

Canadian Government Emigration Agent.

No. 11.

REPORT OF D. TREAU DE CŒLI.

Antwerp, April 1, 1912.

J. OBED SMITH, Esq.,
Assistant Superintendent of Emigration,
London.

Sir,—I have the honour to submit my report for the fiscal year, ending March 31, 1912.

I am pleased to state that the result of this year's propaganda work will be even more encouraging than last year's and that I have every reason to believe that the experimental stage of the immigration into Canada, for Belgians and Dutch has passed and that the conviction of success, based upon proofs, has taken the place of doubts and distrust of former years. Not a single emigrant of Belgium or Holland, has anything but words of praise for Canada, and words of encouragement addressed to their countrymen, to come and rejoin them in our country.

This good news is communicated monthly to my correspondents and to others, through the medium of the little French monthly, Le Canada Occidental, and the

Flemish translation, West Canada, and is much appreciated by the readers.

The interest taken by Belgian school teachers in everything concerning Canada does not abate, and I see that the schools of adults in the farming communities are amply provided with atlases and wall maps and a judicious use is made of these, also of lectures with lantern and views, in order to bring Canada before the public as it is, with the advantages it offers to any person who will devote himself to agriculture.

I shall make here special mention of a pamphlet issued by the Belgian government, for the information of those who intend to emigrate to Canada. This pamphlet corroborates the official literature of the Department of the Interior of Canada, it is printed in the French and the Flemish languages, and distributed to all Belgian

applicants.

Three of the principal commercial high schools (of Liège, Mons, and Louvain) have demanded from their students an essay on Canada (agriculture, industry and commerce). The best of these essays will be published in reviews and educational periodicals. Numerous demands for literature, statistics and information have been made, which I furnished as complete as possible.

I have given this winter only twelve lectures, as there has been a continual demand for the loan of lantern and views, which I readily send with the synopsis of a lecture,

as generally given by myself.

Although not compulsory, I have impressed upon every one intending to go to Canada that it is necessary to have a certificate of the municipal authority, certifying to his good character and conduct. I make it a condition to obtain an introductory letter to the government agents in Canada. I attribute to this, and to the trustworthy information I always give them, the almost total absence of any undesirable Belgians, amongst those who passed through my office. I think it my duty, at the time when emigration tends to become more and more numerous, to endeavour to obtain quality in preference to quantity.

I may state that the Belgian emigration has been very satisfactory, which is amply proved by the fact that a large number of well to do farmers have left with their families and sufficient capital to settle at once on a farm, but I dare say that

the Dutch emigration presents itself under still better aspects.

With an outlay of not more than one-fifth of the total annual expenditure of this office, and about one-fifth of my time devoted to propaganda in Holland, the number of Dutch emigrants was for the year 1910-11 about 50 per cent of the total number of the Belgians.

This, though, might be accounted for by the difference of character of both people; while Belgians emigrate only after conviction that it is to their advantage to do so, Dutch or Hollanders are ready to run their chance, and have more self-confidence.

Another reason might also be mentioned, Holland is essentially an agricultural country, Belgium has a very large proportion of its population employed at industrial

enterprises.

If I can obtain a large number of Dutch atlases, I shall do for Holland what I have done for Belgium, namely: provide the teachers, upon demand, with the necessary material to study the geography of Canada, and I am sure that the result would be satisfactory.

During the fiscal year 1911-12, I received 5,125 letters, of which 4.090 called for an answer.

This correspondence might be classed as follows: 502 English letters, 2,110 from French-Belgians, 1,411 Flemish-Belgians, 902 Dutch and 190 German and Swiss. One thousand four hundred and eighty-one visitors presented themselves at the office for information while I met as large a number at my lectures and appointed meetings.

Your obedient servant,
D. TREAU DE CŒLI,

Canadian Information Agent.

No. 12.

REPORT OF PAUL WIALLARD.

3, RUE DE L'ISLAY, PARIS, April 1, 1912.

To the Superintendent of Immigration, Ottawa.

Sir,—I have the honour to present to you my report for the fiscal year closing March 31.

Our correspondence this year has risen to a total, requests and replies, of 19,850 letters.

The number of visits has been 2,350.

We advertised as usual in three of the principal newspapers of France, those which have elsewhere the greatest issue; but the kind of advertisement that we have made is limited to giving our change of address as an information office of the Canadian government at Paris, certain that all those that have need of information as to our country will not fail to profit by the opportunity of applying to us. In fact, since our departure from the rue de Rome address, where we had been so long, the public had lost trace of us and it was necessary to let them know our new address.

Further, as Canada is becoming more and more known in France, we are able to see from the letters that have been addressed to us that those who wish to emigrate are in general very well informed as to the advantages offered by Canada.

I am happy to say that the total of the French emigration for 1911-12 has been perceptibly higher than that of the preceding year, and I have not the least doubt that the present season will be marked by still more satisfactory results.

We are using all legitimate means to make Canada known over here in all its aspects, geographical, historical and economic. We have given this year about five hundred lantern lectures, in places where the knowledge of our country was not as yet sufficiently established, and I am looking forward to an extension of this work. The pictures shown in connection with these lecture exhibit the beauties of our country; our superb rivers, immense lakes, magnificent forests, luxuriant vegetation, our imposing mountains, and our fertile plains, the prairie covered with wheatfields, which are the admiration of all the world. The organization of these lectures kept us well occupied all winter. It has enabled us to distribute about 20,000 atlases and 1,500 wall maps, which, for the most part, are placed on the walls of public schools.

We have had, as in years past, to reply to a number of inquiries coming to us from Luxembourg, Switzerland and the north of Italy, as well as to a great number of persons who, though of foreign nationality, live in France and wish to go to Canada.

Among these are many Belgians.

The standard of the classes going to Canada is much higher than it was before, thanks to the measures prescribed by the department and which permit of a better selection being made. In all cases, we make it a duty to discourage those who would not be in a favourable condition to succeed in our country, eliminating the persons belonging to trades or to professions which would render them liable to difficulties in finding work. By acting thus, we are certain to render them a service and we believe that we hold to the spirit as well as to the letter of the laws that govern the question of emigration in France.

The Allan Company has as usual given us an excellent service during the whole year and we learn with pleasure that the General Transatlantic Company inaugurates this season a monthly service which will form another useful link between our country

and France.

Your obedient servant,

PAUL WIALLARD.

OPERATIONS IN THE UNITED STATES.

REPORT OF THE INSPECTOR OF UNITED STATES AGENCIES AND PRESS AGENT.

The Superintendent of Immigration, Ottawa,

SIR,-One hundred and thirty-three thousand, seven hundred and ten, are the figures given as the number of persons from the United States in 1911-12 who have declared their intention of becoming residents of Canada. The wealth taken by these people into the country, which might approximately be placed at 133 million dollars, by no means represents the wealth added to the nation. These people are of a high standard. Most of them have been raised in the rural districts of the several states in which our agents are operating, and have brought with them the high ideals of citizenship, of integrity, honesty and industry that have been instilled into them through generations of a hard-working, honest and industrious ancestry. They have assisted in tilling the farms of their own prairie states, and in moving to Canada, where farming conditions are similar, they lose no time in introducing the methods they have found so successful in their home country. It is probably for this reason, or partly so, that in the work in the United States, there are practically no reports sent back of failure. They have become possessed of a soil that responds as readily as any soil they had ever cultivated, and with crops that repay them away beyond any of their previous experience, and with a climate that is invigorating and healthy, they are appreciative. The reports sent back to their friends are always optimistic. If those who may be interested in other parts, invent and circulate derogatory reports, they are among the first to send out a disclaimer. The fact that those who have gone, some to spy out the land, others to live upon it and work it, send back to their friends truthful reports, is a factor in the large increase shown year after year.

The prospects for the year 1912-13 are as bright as any in my experience. The correspondence at the various offices is growing rapidly, and it has become so large in some of the offices that extra assistance has to be secured. The number of interviews has also greatly increased over last year, and judging from all sources of information available, I feel I am safe in the prediction that the incoming fiscal year will show a

considerable percentage over the past.

Most of the American settlers are those of mixed nationalities, Germans and Scandinavians going forward in large numbers. A great many of those comprised in the American immigration are Canadians, who have been farming in the United States for some years and have done well, yet they want to take their share in the upbuilding of the Empire to the north, which still has in their hearts the sympathy of home ties and affiliations. There are also those of British descent. There are none of the class who will not make good citizens, none of the undesirable, none who will not make for law and order, and be careful in their observance. The quality of the American emigration to Canada has been commented upon in the most favourable way by prominent statesmen of the United States and by high-class newspapers and magazines. Reasonably, there is a feeling in some places across the line that it would be well to keep these people from moving to Canada. In order to check the movement various means have been resorted to. Banks have attempted to

curtail borrowing privileges, large land companies with holdings that have been in their possession for years, have used every means to exploit them and attract the buyer. In this way much has been heard of the Florida Everglade, of the Texas plains, the New Mexico irrigated tracts, the Arizona plateau, the Colorado valleys and hillsides, the United States reclamation tracts in various of the western and coast states. Many of these have a good deal of merit, and doubtless have diverted some attention from Canada; yet, with the great hunger for land, evident everywhere, from the man behind the counter who will tell you of the day he worked on the farm, to the man teaming in the city, who knows all about horses and those on the over-populated 100 acre farm, it is found that the back-on-the-land educational propaganda is meeting with success. Soon all lands that are capable of producing will be in demand, and it will then be the 'survival of the fittest'; the land that proves best will be the greatest attraction.

During the past year, the same methods of bringing Canada to the attention of the clientele in the United States that have been used so successfully in the past, were again pursued, such as advertising in the farm and country papers, personal talks by the agents with the prospective settler, the placing of exhibits at various county and state fairs, arranging for parties of editorial writers, &c.

The agents in the field have been very active in the work, and it is pleasing to be able to record my appreciation of the splendid results that have followed their

campaign.

Some changes have taken place in the staff during the year. It is with regret I have to speak of the death of Mr. E. T. Holmes, who for years occupied the position of agent at St. Paul, and in that capacity did splendid work for the department.

Mr. R. A. Garrett, of Manitou, Manitoba, is his successor.

Additions to the staff have been made. Mr. F. H. Hewitt, of Findlay, Manitoba, has been appointed in charge of the work in Iowa, Mr. W. E. Black has opened an office in Crookston, Minn., and will have charge of the work in the northern part of that state. Mr. T. Conley has been sent temporarily to assist in the Spokane office. Mr. Jas. Maw will have charge of an office in Harrisburg, Pa. In November last, the office at Boston was closed, and the staff relieved of their duties. It was apparent in January, 1912, that there was enough work in sight, to warrant the re-opening of the office. It was decided to place Mr. Max. A. Bowlby in charge. He is well acquainted with conditions in the Maritime provinces, and will do considerable towards the repatriation of this splendid class of people. He will also take care of the interests of the western portions of the Dominion. It will be necessary to have an assistant for him.

An office has been opened at Manchester, N.H., with J. A. Laferrière in charge,

who will look after repatriation of French Canadians.

Mr. J. R. Hood, of Oak Lake, was in the field early to assist in the work in Kansas, Missouri and Oklahoma; Mr. J. L. Newman, of Pigeon Lake, Maritoba, was

appointed as temporary assistant to Mr. Geo. A. Hall, of Milwaukee.

The interests of the German and Scandinavian work are being carefully watched, Mr. Cleven having been appointed to visit the several Scandinavian communities in the United States to set out the advantages that western Canada offers to that class of settler.

Your obedient servant,

W. J. WHITE.

OPERATIONS IN WESTERN CANADA.

REPORT OF THE COMMISSIONER OF IMMIGRATION. .

WINNIPEG, MANITOBA, May 8, 1912.

The Superintendent of Immigration, Ottawa.

SIR,—I beg to submit the report of the Winnipeg office, and the western offices reporting thereto, for the financial year ending March 31, 1912.

STEADY STREAM OF IMMIGRANTS.

I am glad to be able to report that the stream of immigration into this western country has continued during the past year with unabated vigour, and the aggregate volume shows a marked increase over the immigration of the preceding year.

MANY BRITISH.

Again I am glad to be able to report a very noticeable increase in the proportion of British immigrants settling in the Prairie provinces.

GOOD QUALITY.

The gratifying improvement in the quality and wealth of the immigrants referred to in the previous year has been continued through the past year, and I think I am entirely within the mark in saying of the whole stream of immigration to the west that both in quantity and in quality it far surpasses anything hitherto known in the history of immigration to Canada.

INFLUENCE OF FRIENDS.

While the general work of this branch is greatly increased by the increasing volume of immigration, one cannot but notice that consequent with the improvement in the quality of the immigrants is a disposition to independent action and a desire to arrange settlement for themselves without depending upon any extraneous aid either from this department or any other organization. I am also glad to note that the policy of the department in encouraging satisfactory settlers to communicate with their relatives in the old country is having a very marked and agreeable effect, inasmuch as an ever largely increasing proportion of the immigration is destined to relatives and connections and is coming to the country with fixed ideas both as to location and occupation.

MORE FAMILIES COME.

It is with great satisfaction that I notice the increasing number of families which are coming. The practice of the husband to leave the family behind and make his way in Canada alone for a time is falling into disuse, and the progressive and enterprising immigrant is showing such confidence in the country and in himself that he is hesitating less and less to bring his family and all his belongings with him, and thus set up home in the new country as quickly and as completely as possible. This has a distinct

advantage inasmuch as the old practice of halving the cherry, i.e., dividing the income between maintenance here and the maintenance of the family at home, is no longer in vogue.

USING HALLS.

The new settler continues to take generous advantage of the immigration facilities provided at Winnipeg and at 35 or 40 other points in the west. As many as one thousand persons have been provided with accommodation in one night at the Winnipeg halls during the very busy part of the season, and throughout the spring and early summer months an average of from five to six hundred have been given accommodation, either prior to settlement in this city, or while awaiting train connections for remote destinations west and north-west of Winnipeg.

SENDING WESTWARD.

The work of disposing of the vast numbers of immigrants arriving at this point is one of ever increasing care and responsibility. It is not an uncommon thing in the summer for as many as 1,000 to 1,500 new settlers to detrain at this city in one day. The work of sorting them out for their various trains and destinations, rechecking their baggage, directing as to proper trains, and providing accurate and satisfactory information, entails a great deal of hard work and has, I think, been carried out very successfully.

THE LABOUR BUREAU.

For those who remain in the city to become residents, or who remain here for the purpose of obtaining employment in the western provinces, the Labour Department of this office does very effective work. Happily, the labour conditions are such that there is no difficulty whatever in finding instant employment at agricultural work for either experienced or inexperienced men, while female labour, either as domestics or housekeepers, is never within 50 per cent of its active demand. The department, as you are aware, takes no part whatever in finding employment for skilled labour, but for the unskilled labourer who is anxious for employment at agricultural work, as well as at railway construction, the Labour Bureau of this office arranges immediate employment. During the past year the applications for experienced help received at this office numbered 17,716, while we were able to place only 11,189, being a shortage as you will notice of something over 6,000 persons, while the figures for inexperienced labour are equally large and the proportion of filled places approximately the same. The increased area being brought under cultivation has made of course a corresponding demand for increased labour, with a consequent increase in wages, and last summer and this spring hundreds of farmers have been offering \$35 to \$40 per month for eight months, together with board and lodgings for experienced men; while inexperienced men are snapped up at from \$10 to \$15 per month and board and lodgings for the twelve month period.

PRAIRIE IMMIGRATION HALLS.

In the country districts the new-comers are cared for by 40 immigration halls scattered throughout Saskatchewan and Alberta. In these halls the new-comer is received and provided with accommodation, light and fuel and permitted to remain there until he has had every reasonable means of making a settlement upon the land. While there is officially a fixed period of residence in an immigration hall, at the same time practical caretakers of these buildings see to it that if the new-comer is making an honest effort to settle, no stated limit of residence is imposed upon him.

TOWNSHIPS THROWN OPEN.

A considerable number of new townships have been thrown open for homesteading in the northern parts of Saskatchewan and Alberta. Many of these townships are situated north of the main line of the Canadian Northern Railway west and north-west of the Battleford district. These splendid lands have been very attractive and more than a thousand homesteads have been taken up in this district alone within the past three months.

CLAIMS OF MANITOBA.

Greater attention has been drawn to the deserving claims of Manitoba as a home for the progressive and enterprising homesteader. There has been some measure of active co-operation inaugurated between the Dominion and the provincial officers, and the result has been that a considerable amount of attention has been directed to the very desirable land, desirable in every respect, but more particularly in respect of mixed farming in that great and rich region of country throughout the Dauphin and Winnipeg land districts. While it is true that much of this land is timbered, it is equally true that much of it is fit for immediate cultivation and that almost all of it is extremely rich in those qualities that are best suited for a system of mixed farming, and in these days when the doctrine of mixed farming is being brought more prominently before the public attention, it would appear that the claims of Manitoba, possessing large areas of this kind of land, must immediately command public notice.

Along the Grand Trunk Pacific Railway east of Winnipeg are several hundreds of splendid homesteads fitted for mixed farming and it is gratifying to note that the efforts of the department, in co-operation with the Manitoba Immigration Department, to draw the attention of the Norwegian settlers in the north-west provinces of the United States, are having a marked success and are likely to result in a very valuable and important movement towards these somewhat neglected but invaluable lands in the eastern and northern parts of the province of Manitoba.

EXTENSION OF BOUNDARIES.

The extension of the boundaries of Manitoba northward to the Hudson Bay will bring immediately within the scope of our work an increased and invaluable area for settlement, and I have no doubt that the great richness of that country in fisheries, minerals, and timber must inevitably result in drawing a vast amount of capital and a large number of people to its development and subsequent settlement.

RAILWAY CONSTRUCTION.

Railway construction in the western provinces makes amazing progress, and yet I regret to say that it seems entirely unable to keep up with the settlement movement. In the provinces of Saskatchewan and Alberta alone, the three great railway companies operating in the West have under construction about two thousand miles of main and branch lines. This great work of railroad construction gives employment not only to a vast army of labourers, but it is opening up new and wide territories that must in a short space of time add immensely to the productive power of these prairie provinces. It is calculated that at least 20,000 men will be employed at this work in Manitoba, Saskatchewan, and Alberta, during the ensuing summer, and that much of this work will be continued on through the succeeding winter. As I have said, notwithstanding this rapid railway development, settlement pushes out far ahead of the line of steel, and wherever the railroad goes it finds the farmer with his crop awaiting its approach and ready with his demands for cars and railroad facilities. That these conditions are likely to be continued in the future goes without saying. The great difficulty experienced by the railroads in handling last year's crop will,

notwithstanding this great railway development, be further accentuated in the near future. The thousands of new settlers the Immigration Department is placing upon the land are making themselves felt in the new areas constantly being brought under cultivation.

NEW ACREAGE UNDER CULTIVATION.

In the province of Manitoba in the present year 233,068 acres of spring breaking are being placed under wheat for the first time. The area under wheat in Alberta will average about the same as last year, but in Saskatchewan 2,300,000 acres of new land will bear its first crop this year. While it is true that the climatic conditions of last year retarded fall ploughing both in Manitoba and in Saskatchewan, at the same time it is of interest to note that this year 964,100 acres of summer fallow will be placed in crop in Manitoba and 2,188,118 acres of summer fallow have been placed under crop in Saskatchewan this year. You will see then from these figures what is meant when I draw your attention to the still inadequate efforts to provide railway accommodation for the vastly increasing crops of the western prairies.

SETTLERS FROM STATES.

The volume of immigration from the United States both in quality and quantity continues to be most satisfactory. There has been an important increase in the numbers during the months of January, February and March of this year, and this increase would appear likely of sustainment during the balance of the immigration season. The success that has attended the American settlers is drawing a great deal of attention in the United States with the result of not only an increase in the actual settlers from month to month, but also in drawing to this country a great deal of American capital and a large number of American investors. The hotels and trains of the West at the present time are filled with men bringing capital from the United States and seeking openings for its investment in the West.

SETTLERS WINTERED WELL.

I am glad to say that during the past year, notwithstanding the difficulty of handling the crop and the rather inclement weather of the harvest season, the amount of distress has been not only less than in former years, but comparatively insignificant. There has been no serious suffering of any kind; the weather was fairly mild; the snow-fall was normal. The wet fall brought richness of verdure and consequently plenty of food for stock. As a consequence, the new settler has wintered well and enters upon his spring work with hope and confidence.

BOUNDARY INSPECTION.

The work of boundary inspection between Port Arthur and the western slope of the Rocky Mountains, which is under the direction of this office, continues to be a most important part of our work. The name and fame of Canada, with the stories of its richness and its opportunities, attract the undesirable as well as the desirable, and the duty is placed upon us of a nice and just discrimination between the people whom we want, and those whose coming to us would be a distinct misfortune. In the mountains of British Columbia particularly this duty is attended with a great deal of labour and hardship. The great mountain passes provide ready means for the undesirable to 'beat' his way into the country without legal admittance. Fortunately, with the co-operation of the local police in the western districts and the constant and vigilant care of our officers, I have reason to believe that the influx of this undesirable element is reduced to a minimum, and that having regard to the total proportions of the season's tide of immigration the undesirables, physically, mentally and morally, form a trifling percentage of the whole.

SERVICES OF MOUNTED POLICE.

Again I have to express my obligations to the officers and members of the Royal North West Mounted Police for prompt and valuable service in emergency. In the remote districts particularly the police are the eyes and ears of the immigration branch, and have done much, and are doing much, to assist and promote the safe and satisfactory settlement of the new comers.

I have to express again my appreciation of the cordial co-operation of all the officers engaged in the immigration service in the West who are under the direction of this office. They recognize fully the great importance of the service in which they are engaged, and I have reason to repose the greatest confidence in their intelligence and their honest desire to meet, greet and assist the new settler in his settlement under the most favourable conditions.

Your obedient servant,

J. BRUCE WALKER,

Commissioner,



JUVENILE IMMIGRATION.

REPORT OF G. BOGUE SMART, CHIEF INSPECTOR OF BRITISH IMMI-GRANT CHILDREN AND RECEIVING HOMES.

> DEPARTMENT OF THE INTERIOR, OTTAWA, March 31, 1912.

The Superintendent of Immigration, Ottawa.

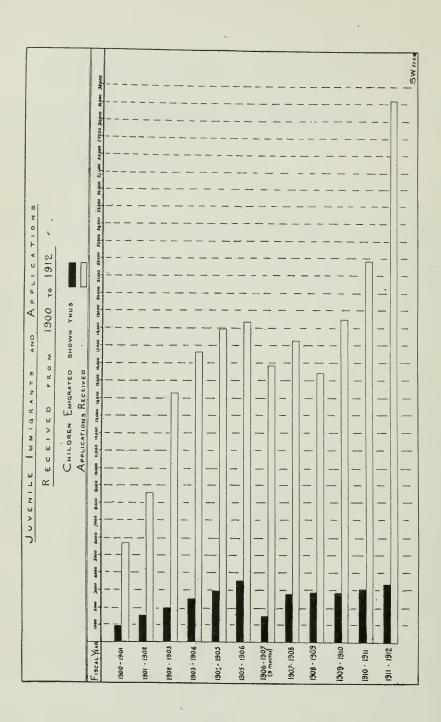
SIR,—I have the honour to submit my thirteenth annual report as Chief Inspector of British Immigrant Children and Receiving and Distributing Homes, this being for the fiscal year ending March 31, 1912.

The satisfactory result of the work of the various agencies during the past twelve months has been abundantly demonstrated. The type of the British juvenile immigrant has been desirable from the point of view of Canada's requirements. The children were almost immediately after their arrival at the Receiving and Distributing Homes despatched to foster homes and to situations arranged for the most part in advance of their emigration. These centres of reception and distribution are located in the provinces of Ontario, Quebec, Nova Scotia and Manitoba, and number eighteen in all. The various provinces receive, according to the openings offered, a fair number in the distribution of these youthful settlers.

The lofty aim and principles of the founders of this admirable movement have been respected and it affords me pleasure to report that the children have been, with few exceptions, desirably placed, and in houses and situations wherein they may reasonably be expected to develop habits of industry and become good, useful citizens of the Dominion. The average age of the children on their arrival in Canada is between twelve and thirteen years.

The children visited during the year have been found to be in the enjoyment of sound health and good physique, and these most satisfactory conditions are no doubt the outcome largely of the care and regard paid by the authorities to the hygienic surroundings of the children in the preparatory homes and schools in the old country. In many if not all of these splendidly equipped institutions the children are subjected to regular monthly medical examinations. On the occasion of my last visit to the old land I happened to be at one of the large poor law schools when the physician was putting the children through the test and found that the examination was both systematic and thorough. Later in the course of my inspection of the children I remarked to the Assistant Local Government Board Inspector who accompanied me, on the apparent splendid condition of the children's teeth, which I consequently learned was the result of the importance attached to health conditions in both the state and voluntary schools. Each child has its teeth examined by a dentist at least once every three months. In addition to these preventive measures there is another which I might term constructive, and which is included under the general term of gymnastic or calisthenic exercises. Apart from the good food and fresh air which the children receive, there is probably no other single factor regarded by the authorities so important in building up both the mental and physical health of the children as these physical exercises.

In nearly every home and training school in Great Britain visited during the past summer I was immensely impressed by the esprit de corps in the children and their 100



superiors. It was evident that the object sought by teachers and officials was to impart to the children the foundation of a sound moral education, and as far as possible to eliminate the effects of 'institutionalism,' which one sometimes dislikes, not alone in the juvenile but frequently in the adult immigrant, i.e., the lack of a spirit of self reliance and initiative, a lack which so often hampers a young person in pushing his way in the world. This is by no means an easy task when one remembers the vast population of Great Britain and Ireland and the necessarily large number of children enrolled in the training homes and schools.

In the course of an interview with the late Arthur Chilton Thomas, a well known barrister of Liverpool, and an acknowledged authority on juvenile sociology, he stated in effect that in large schools the children have had so much done for them that they do not at first appreciate the necessity of work in order to earn their daily bread, but in a short time, when the situation has been made clear to them, they turn out much better than do the boys from their own homes, having had the advantage of the discipline and training of the school.

It is a cardinal feature of the work and one of general recognition by state and private organizations that individual attention is what counts most in the work of character building.

The Scattered and Village Homes and Boarding out System in Great Britain have been most successful, in that they have provided Canada's prospective young citizens with a thorough and comprehensive pre-emigration training.

A number of 'one time' British juvenile immigrants after completing their apprenticeship in eastern Canada have joined the rush to the far western provinces, where they have taken up government land, and become successful farmers. Many of the boys at the age of 17 or 18 years also go to western Canada as harvesters and take advantage of the midsummer excursions. Pleased with the conditions and prospects they remain in the West. Others have acquired land in the older provinces in their own right or become 'tenant farmers' and in the main are prosperous and contented.

The general increase of wages to deserving boys referred to in the reports of my assistant must prove encouraging to their well wishers, not only in the homeland but also in Canada.

The Reverend Dr. Gregory, of the National Children's Home and Orphanage, of London, corroborates my experience in a recent article where he says:—'In Canada the quick witted, energetic, active boy to whom farming might appear monotonous rapidly accepts his new conditions and settles down as if he had been born "a child of the soil."' The government of Canada has received from many sources similar gratifying reports concerning the progress of the British juvenile immigrant. Of 1.744 children inspected and reported upon during the past year 1,536 were found to be making very good progress and giving entire satisfaction to their employers and 179 were considered good or fair. Only 29 of this large total were pronounced unsatisfactory.

There has been a constant call for the services of these children, and almost exclusively from farmers, although many good openings in our towns and cities have been filled by girls, from 14 to 16 years of age, as house and nurse maids.

As has been frequently stated the absence of this annual source of supply would be felt acutely by the farming community. The services of these young immigrants on our farms have become in fact indispensable. There are many kinds of farm work which a boy can do quite as well as a man.

The accompanying chart sets forth in a striking manner the disparity between 'supply and demand,' and must be accepted as collateral proof of the acceptability of the services of our junior immigrants. It should be observed *en passant* that a large number of applicants for children were persons who for years have been regular clients of the various agencies.

The following statement shows the number of children emigrated by the principal agencies during the past fiscal year.

Society or Agency.	Children Emigrated.	Applications received for Children
Dr. Barnardo's Homes, Toronto and Peterborough, Ontario, and Winnipeg, Man. Miss Macpherson, Stratford. Mr. J. W. C. Fegan, Toronto. Reverend Dr. A. E. Gregory, Hamilton. Reverend Robert Wallace, Marchmont, Belleville. Fairknowe Home (Mr. Quarrier's), Brockville The Misses Smyly, Hespeler. Mrs. Birt, Knowlton. The Catholic Emigration Association. Church of England Waifs' and Strays' Society, Sherbrooke, P.Q. Church of England Waifs and Strays' Society, Niagara-on-the-Lake, Cnt. Mr. Middlemore, Halifax, N.S. Salvation Army, Emigration Agency Mrs. Wallis, Toronto. The Children's Aid Society of London, England. Self Help Emigration Society. East End Emigration Fund	†971 220 99 103 68 181 38 184 399 73 52 171 24 11 27 47 21	23,060 1,096 450 712 697 1,230 298 1,746 633 115 453 400 125 25
	2,669	31,040

† 297 arrived 31st March, 1912, disembarked 1st April, 1912. a Not reported.

The British juvenile immigrant is like other boys, good, bad and indifferent in disposition, and it depends largely on how he is treated whether or not he will do well. With reference to the character and behaviour of the old country boy in Canada the reports speak well for their early training, for out of a total of 1,744 the number found to be very good was 1,557; good or fair 158 and unsatisfactory 29.

The children visited, with comparatively few exceptions, were found (1) well housed. (2) properly clad, and (3) reasonably remunerated for their labour. An equally gratifying result of the year's inspection is that such a small number were described as 'undesirable.' It is a very uncommon occurrence to find a juvenile immigrant in the 'arms of the law.' The generally satisfactory outcome of the work, I may repeat, may be credited to the following factors:—(a) probationary pre-emigration training. (b) careful selection, and (c) the maintaining in this country of a continuous supervision by those who must be responsible for the children until they reach, at least, the age of eighteen.

The following table shows the number of children emigrated by the principal societies and agencies during the past eleven years.

						Fiscal	L YEAR	₹.				
Agency.	1900-1	1901-2	1902-3	1903-4	1904-5	1905-6	1906-7	1907-8	1908-9	1909- 1910	1910- 1911	Total.
Dr. Barnardo	385	889	1,150	1,188	1,574	1,434	944	950	1,034	1,010	924	11,482
Rev. R. Wallace Miss Macpherson Church of England	59 60		75	94 142		112 207	91	80 166		46 175	75 227	766 1,488
Society Bristol Emigration	60		89	83	84	144		126	123	74	103	988
J. W. C. Fegan Liverpool Catholic	33 43 43		13 46	40 49	40 53			73	75	109	96	236 644 43
Canadian Catholic Society.	60		125	106								423
Catholic Emigration Association Mrs. Birt	95		151 158	206 106		359 191	$\frac{175}{70}$	173	142	187	334 161	2,510 1,589
J. T. Middlemore National Children's Home & Orphanage			127	130	84	298 102	109	145 76		129	157 106	1,345 842
Girls' Home of Welcome	2	4				107		183	100	139	100	6
Mr. Quarrier Salvation Army Children's 'Aid of					}	20	39		42	44	13	1,031 158
London Women's National Mrs. Wallis								31 12		23		78 31 35
Mrs. Close East End Emigra-								3				3
tion Fund	 					32			13	22 30	80 27	4 115 146
Working Boys Home Private Parties				8		6					3	14 3
	977	1,540	1,979	2,212	2,814	3,258	1,455	2,375	2,424	2,422	2,524	23,980

This table it will be seen shows that an army of about 25,000 children have been brought to Canada within the space of little more than a single decade, and the small percentage of failures already alluded to, applies to all of these.

Inspector Henry makes the following report:-

'The year for inspection of British children just terminated has been, to me, more varied than former years owing chiefly to the death of Mr. Annand, of Halifax, Nova Scotia. In the month of May I was instructed to visit the provinces of New Brunswick and Nova Scotia to continue the annual inspection of the children there. While I found them in these provinces to be generally well placed, quite a number expressed discontent on account of the absence of remuneration for their services, excepting clothing and schooling to the age of sixteen. They naturally think that some monetary consideration is due to them, especially when they meet other young people similarly employed who are paid wages for their work. As a rule, however, all were well clothed, but in the case of some attendance at church, Sunday and day school was not as regular as it should have been. In fact I would suggest and recommend that the form of agreement in use in these provinces be amended so as to provide a monetary consideration for boys and girls after reaching the age of fifteen, and that attendance at church, Sunday and day school be given more prominence.

'Farming in the said provinces, owing I should say to mining and fishing, differs from that of Ontario and Quebec, but on the whole the farmers are well-to-do and in my opinion are quite able to comply with such terms as are set forth in the forms of agreement in use in Ontario. Some of the children were scattered over a wide area, long drives being necessary in order to reach them. Their health could not be better. In fact I scarcely met with any who were not robust and vigorous.

'The results of my inspection in Ontario were even more satisfactory than in former years, and a marked improvement was observed, especially in regard to clothing, school attendance, church and Sunday school. A feeling of contentment and happiness

seemed to prevail almost everywhere.

'Between seven and eight hundred children were seen and reported on and I can safely say that not more than a half dozen could be termed as unhealthy or otherwise unsatisfactory.'

Inspector R. W. Hillyard says in his report:—

The year 1911 has afforded ample opportunity of realizing the great importance of child immigration from the British Isles to Canada. On every hand we have the most undoubted evidence of the importance and success of this work. The children in most cases show an aptitude in adapting themselves to the ways and customs of the country and gradually develop into useful farm servants. My experience impresses me with the very small percentage of failures—the great majority in a lesser or greater degree are making a success of life, while their moral standing compares favourably with Canadian born children. Those who are attending school are making fair progress. Not unfrequently they stand well in their classes. Many of these children are winning warm places in the hearts of the families where they are placed, and are decidedly helpful in the performance of such labour as is required of them. Many have completed their indentures and are in receipt of substantial remuneration for their services. At times we have to mourn over some failures but it would be unreasonable to expect perfection in all. The homes placing and looking after these children have an arduous task to perform. Sometimes the children get into the hands of unworthy people, and such cases are always difficult to deal with. I would suggest that in all cases a definite sum of money be stated in the agreement to be disbursed in good and comfortable clothing. When the item of clothing is left to the generosity of employers too much economy is practised, to the injury of the child.'

The following are reports of my visits of inspection at the Receiving and Distributing Homes. Both the Imperial and Canadian governments regard the maintenance of these centres as essential to the success of the juvenile immigration movement.

THE NATIONAL CHILDREN'S HOME AND ORPHANAGE, HAMILTON, ONTARIO.

(Founded by Dr. T. Bowman Stephenson.)

During the past year one hundred and three children, chiefly boys, were sent to Canada under the auspices of this agency, and placed in the farming districts of western Ontario. I have personally visited a number of their wards in the course of the year and with few exceptions I found them well placed and well spoken of by their employers.

Mr. Hills, the Governor, keeps in touch with the children and in addition to the

visits paid each child, maintains an extensive correspondence with them.

The first party of young immigrants for the calendar year reached Hamilton on the 30th instant, and I was afforded the opportunity of personally inspecting them and seeing some of their number departing for their new homes in company with employers. The lads were provided with good outfits, and were a very healthy, promising lot. Many of the party had had some previous experience at farm and garden work in England.

This home is splendidly equipped, and well managed and due regard is paid to the best interests of the children.

'FAIRKNOWE,

Mr. Quarrier's Home for Scotch children, Brockville, Ontario.

I paid an official visit to this splendidly equipped Receiving and Distributing Home on 27th December last. There were no children in residence, and from a perusal of their visitor's reports it would appear that their wards are contentedly situated.

The work of the home under the superintendency of Reverend Robert Grierson is efficiently conducted, and in the selection of homes the highest welfare of the children is safeguarded. Their wards are placed out only after the most careful inquiry into the personal character and surroundings of the applicants. Mr. Grierson reports that during 1911 he placed 100 boys and 80 girls with farmers in the Brockville district. Many of the applicants had awaited the arrival of the children for months and some even a year.

THE 'COOMBE HOME,' HESPELER, ONTARIO.

Thirty-six children, twenty-four boys and twelve girls, were received from Ireland during the past year, a slight increase over former years. Thirty-nine children were placed in situations, or an average of one to each seven applicants. There are at present the names of one hundred and eighty-eight children on their registers. An efficient supervision has been maintained and one hundred and ninety-eight personal visits were made, and the majority of the children were found very happy and contented.

Mr. Bird, the Secretary of the Homes in Dublin, who visited Canada and made a personal visitation amongst the children during the past summer, stated, 'It makes the work much more interesting and certainly very encouraging to have such a pleasant conception of the children so well settled in life.'

This home is admirably situated and the work is carried on with the best interests of their young immigrants in view.

MRS. BIRT'S HOME, KNOWLTON, P.Q.

January 18, 1912, I paid an official visit to Mrs. Birt's Home.

The past year has been one of much activity. Three parties of children were received and distributed under direction of this agency, viz., February, seventy-two boys, April, fifty-two girls, May, twenty-four girls and forty-two boys, a total of one hundred and ninety children of the average age of fourteen years.

There were nine children in residence, seven of whom were boys and two girls. These children were busy in the class room, sewing and mending preparatory to being placed out. Their appearance was pleasing, all being neatly and seasonably clad and creditable to those in charge of the home.

The house as usual was in good order throughout and the children's quarters warm and comfortable. A fire escape had since my last visit been erected on the south side of the building.

Written agreements are entered into with employers for the children and the visitor's reports are systematically recorded. The lady superintendent and her staff are deeply interested in their work.

DR. BARNARDO'S HOMES.

It was my privilege during the past year to study the *modus operandi* of this influential organization in England, with particular regard to the reception of children into the homes and schools and the after care and training they receive, preparatory

to emigration to Canada. These essential features from a Canadian point of view were found most satisfactory.

On 15th June, I inspected Dr. Barnardo's London Home for boys, Stepney Causeway. There were 350 boys under training, attending classes and being taught various trades. The training is comprehensive and useful and embraces various trades. The moral and religious instruction of the children takes a prominent position in the work of the homes.

A visit was also paid to the Girls' Village Homes, Barkingside, Essex, where under the direction of Mr. William Baker, the Director of the Homes, and Mrs. Barnardo, I inspected the cottages and saw the children in training in the different branches of domestic science. Here I saw 1,300 children of various ages. It was a most inspiring visit.

There are over one hundred homes under the auspices of The National Incorporated Association in Great Britain, housing 9,000 children. Since the year 1882, 23,135 boys and girls have been sent to Canada under the auspices of this association—a population equal to some of our Ontario cities. During the last calendar year 14,000 children were under the supervision of the Canadian agency. There are three receiving homes in Ontario and one in Manitoba with a total staff of fifty-five persons. A correspondence with the children is wisely encouraged and during the past year over 100,000 letters were posted.

On 26th January, I made my official inspection of the Boys' Receiving and Distributing Home, Toronto. Here I found twenty-eight lads of an average age of 11 or 12 years—transients in residence, i.e., formerly 'boarders' who having passed the age for boarding out were now waiting to go to the country as farm apprentices. These children were inspected in school. Three boys were found in the hospital wards—one convalescent after an attack of pneumonia, another being treated for a weak knee, and the third, a boy of seventeen who had met with an accident by falling from a tree and injuring his back—a nice intelligent boy.

A trained (certified) nurse is permanently employed and with a medical practitioner, also a member of the staff, the children have the requisite care in case of illness.

The home throughout is comfortably arranged, clean and well maintained. The children are only placed out under agreement. Their earnings which now amount to the very considerable sum of over \$130,000 are collected by the general superintendent and placed in a bank in trust.

THE MARGARET COX RECEIVING HOME FOR GIRLS (DR. BARNARDO), PETERBOROUGH, ONTARIO.

This interesting home was officially inspected on February 16. Four hundred girls were emigrated to Canada last year and distributed under the auspices of Dr. Barnardo's Canadian organization. Of these new arrivals two hundred and fourteen were placed in service, while one hundred and eighty-nine under the age of twelve years were 'boarded out.'

Four thousand and seventy-six girls are at this date under the immediate supervision of this agency and require a constant visitation by a number of lady visitors whose time is wholly devoted to this important feature of the work. The province of Ontario absorbs practically all of these children.

A careful inspection of the visitors' reports was made and I found that this plan of supervision was satisfactorily performed.

The deaths of three of their wards were recorded during the year, due to the following causes, menengitis, typhoid fever and tuberculosis respectively.

Thirteen children were returned to England—two restored to their mothers, three to relatives, two owing to ill-health, one feeble-minded and three as absolute failures.

Thirty-seven children were in residence here, some of whom had been 'boarders' and had just passed the boarding out period and were being sent out to places arranged for them. Others were regular members of the house staff; three were in the infirmary, convalescent.

There are two large dormitories for the children—bright and cheerful—and in each of these I found a number of little girls busily engaged in the ordinary morning's work. The home is well adapted for its purpose and the comfort of the children during their stay is amply provided for. The staff consists entirely of ladies, some of whom have been for years connected with the work of Dr. Barnardo's homes in England.

I subsequently inspected some of the girls from the home who were in service in the city of Peterborough and from their mistresses I received most encouraging reports of their progress, behaviour and suitability.

MISS MACPHERSON'S HOME, AVON STREET, STRATFORD, ONTARIO.

On January 25, I paid my annual, official visit of inspection to this receiving home. The scope of the work of this agency is confined to the province of Ontario. There were three girls and two boys in residence. Their personal appearance was creditable. Considering the large number of children under guardianship, the fact that only five were in the home, is proof of the general satisfaction the children are giving their employers. One of the girls in residence is a permanent member of the staff and two were convalescent after severe illnesses and it was expected they would be able to take places within a few weeks.

Two hundred and fifty-nine children were received from England during the year and were placed, with few exceptions, in farm homes. This number represented an increase over that of recent years. One thousand children's names and addresses are on their visiting list, i.e., to be visited during the year. As some of the children are annually dropped from the list of those under supervision, owing to age limit, 1.100 visits were made by their agents during the past calendar year. The visitors travelled thousands of miles by rail, motor cycle and livery. It is interesting to note that these calls are appreciated, for two years ago their wards presented one of the visitors with a motor cycle.

Applications for children were greater than in former years.

I found the children's quarters warm and comfortable and properly equipped.

MR. MIDDLEMORE'S HOME, FAIRVIEW, HALIFAX, N.S.

Inspected February 9, 1912.

One hundred and seventy-one children have been emigrated by this agency during the past year, of whom one hundred and seven were boys and sixty-four girls—ages 6 to 16 years. There were two boys in the home at this date.

The records of the agency show that on December 31st last, nine hundred and twenty children were under their supervision. Two children were returned to England; seventy-two changed situations for the following reasons: Nine were dissatisfied, forty-two unsatisfactory, eight unsatisfactory or poor homes and thirteen where employers were dispensing with their services. Twenty-nine of these children were from poor law schools. The superintendent advised me that few of their wards returned to the home, five being the highest number at any period, and their stay extended over a few days only. The children are distributed as follows: Nova Scotia, four hundred and fifty-six; New Brunswick, four hundred and forty-one; Prince Edward Island, twenty-three. They are now being placed out on the following terms—for boys attending school, \$5 to \$6 a month, and those past the school age, \$6, \$8 and \$10 a month according to capability.

I visited the children's quarters and found them very comfortable.

Mr. J. Sterling King has recently succeeded Mr. F. A. Gerow, who for a number of years had acted as agent for Mr. Middlemore. During the past year, Mr. Middlemore, M.P., of Birmingham, the founder of the home, visited Halifax.

MARCHMONT HOME, BELLEVILLE, ONTARIO.

On the occasion of my annual visit of inspection at this pioneer home, January 23, 1912, I found but three children in residence.

Reverend Mr. Wallace reported a satisfactory year's work. One lad was returned to England during the year owing to illness; no deaths occurred. A number of boys and girls have married and settled down on their own account. During the calendar year, fifty-three boys and sixteen girls were received and placed in approved homes and situations. These children had come from the following places in Great Britain:

Manchester. Salford. Prestwich. Chorlton. Stockport. The Royal Albert Orphanage Worcester	Boys. 19 15 3 4 1	Girls. 12 3 1
The Royal Albert Orphanage, Worcester. Dr. Guthrie's Homes, Edinburgh, Scotland. Isle of Man. Special or privately brought out.	5 3 2 1	

This home is splendidly arranged and every comfort provided for the children during their stay there. The visitor's reports and the history of each child are carefully kept.

With the urgent demands on Mr. Wallace for juvenile farm help from the farmers of the surrounding counties it is to be hoped that during the coming year a larger number of juveniles than that of the past year may be emigrated.

THE SALVATION ARMY, TORONTO.

The emigration of children by the Salvation Army has as yet been quite limited but I am advised there is in contemplation an enlargement of this branch of the army's immigration system. At this date there are twenty-two of their wards under the supervision of this department.

During the year just closed twenty-four children, chiefly boys were emigrated and placed on farms.

The facilities for the reception and distribution of juveniles at the New Comers' Inn, Peter Street, Toronto, are excellent.

ST. GEORGE'S HOME.

The Catholic Emigration Association's Receiving and Distributing Home, Ottawa,

Two official visits were paid to this home during the year. There were on January 1, 1912, some 1,366 children under the care and supervision of the association. During the past year 275 boys and 124 girls were received from Great Britain. They were of age from 10 to 17 years past, the latter numbering twenty in all. Seven of their former wards are attending college. Two others have become professors in colleges. The records of the home and the visitors' reports were very satisfactory. The distribution of their wards was as follows:—One hundred and eighty-eight were placed in the province of Ontario, two hundred and five in the province of Quebec, three in Nova Scotia and two joined relatives.

There were six children in temporary residence, some had just returned a day or

two previous to my visit and places had already been selected for them.

The home is well maintained throughout. Plans have been prepared for an addition to the home proper and work will be begun at once. This extension will include better accommodation for the sisters and special quarters for girls, an infirmary and office.

MR. FEGAN'S HOME.

295 George Street, Toronto.

On March 21, I paid an official visit to Mr. Fegan's Receiving and Distributing Home. This occasion afforded me the opportunity of forming a very fair idea of the scope of the activities of this interesting branch. There are approximately five hundred boys in Canada under the immediate supervision of Mr. Fegan—practically all engaged in farm work.

I perused a number of their visitors' reports which not only showed that the lads were thoroughly contented in their occupation, but giving their employers good satis-

faction.

The superintendent and his assistants were busily engaged making out new engagements for their wards for the coming year. A pleasing feature of this work which I noted was the fact that fully 95 per cent of the boys were rehiring with their old employers for another year. Especially satisfactory is this when it is remembered that these young fellows are informed that on the completion of their first year's service they may, if they wish, change their situations. For his first year's service a boy of fourteen years receives a wage of from \$48 to \$50.

There was one boy in residence, under treatment for injuries, the result of a kick from a colt which he was driving into a stable. He is a fine type, of good intelligence and physique. I was particularly interested in the boy in question as I had personally recommended when in England his emigration to Canada. It is quite probable

he will return to his old employer when fully recovered.

Each lad has a separate wage account, and is paid 4 per cent on his savings—one per cent over the current bank rate—a wise plan as it will inculcate habits of thrift and give him that feeling of independence, when a boy knows he has cash in the bank. A monthly audit is made of these individual wage accounts by a professional accountant.

The first party of children for 1912 will it is expected sail early in April.

During my recent visit to Great Britain I was afforded several most interesting and instructive interviews with Mr. J. W. C. Fegan and learned much from him concerning the pre-emigration training given his protegés which is very satisfactory. Mr. Fegan has acquired eighty-four acres of land at Goudhurst in Kent for the purpose of establishing a training farm school for boys—prospective emigrants to Canada—which in regard to buildings, crops and implements will be a reproduction of a Canadian farm homestead. This training should be of great benefit to the lads when they come to Canada.

THE GIBB HOME, SHERBROOKE, P.Q.

On December 1, I paid my annual visit of inspection at this receiving home. That their young immigrants are well settled was made evident by the fact that there was only one boy here at this date owing to illness, a fine, bright young fellow of 17 years of age.

The home is in charge of a matron of some years' experience.

There is an upward tendency in the wages demanded for the boys. The farms of the eastern townships of Quebec provide a most desirable school for the boys. The general progress and behaviour of the children have been good.

The home affords a pleasant and comfortable place to which their wards may return when changing situations.

OUR WESTERN HOME, NIAGARA-ON-THE-LAKE, ONTARIO.

Church of England Society's Canadian Branch for Girls.

On February 21, I paid an official visit of inspection to this old established home. There were forty-one girls mostly under the age of fourteen years, in residence. This is not due to the fact that there are not sufficient applications as Miss Bayley informed me she could not supply the demand but owing to the policy of the society not to send out into service children until they had passed their fourteenth year.

A good training is afforded the children in sewing and general house work while a competent teacher is engaged in a private school which the children attend. Each child attends school half a day and the balance of their time is spent sewing and mend-

ing. They make their own clothing and do the necessary mending.

The lady superintendent informed me that the children had been singularly free from sickness, not even a bad cold appearing amongst them during the past twelve months.

I visited every portion of the home and saw the girls in their daily routine of

work.

The home, not originally designed for its present occupation, is a large building, but it has been well improvised. A fire escape is to be at once erected on the west side of the building. The sanitary arrangements and water works system are good, The sleeping quarters for the children are large and airy and beds comfortable.

Only one child was returned to England during the year—owing to hip disease—and no deaths occurred amongst their number. There are one hundred and fifty

children on their visiting list.

The home throughout was in good order and scrupulously clean and tidy.

SELF HELP SOCIETY-EAST END EMIGRATION FUND OF LONDON, ENGLAND.

Mr. E. Marquette, Provincial Immigration Agent, Montreal, has for many years received and placed out juveniles sent forward by these organizations. By special arrangement, St. George's Home and the Women's National Emigration Homes are

respectively utilized for the reception of their immigrants.

Mr. Marquette reports that the societies which he represents have been much encouraged by the progress and success of their protegés. They have been placed in satisfactory homes and are earning good wages. A great demand for girls of 17 and 18 years as domestic servants has kept up. A number of boys have been placed in farm occupations in the eastern townships.

Your obedient servant,

G. BOGUE SMART,

Chief Inspector of British Immigrant Children and Receiving Homes.

A. 1913

BORDER INSPECTION OF IMMIGRANTS.

No. 1.

REPORT OF TRAVELLING INSPECTOR T. B. WILLANS.

I beg leave to submit my fourth annual report.

In the eastern district, of which I have charge, extending from Halifax to Toronto, the following are the names of the ports with the number of the inspectors:—

Name of Port.	Officers.	Immigration Officers.	Tota
Zamanak NY SI		1	4
Varmouth, N.Sort Hawkesbury, N.S	::	1 1	1
lementsport, N.S.		1	1
	i		î
Clair, N.B	1		1
reen River, N.B.		1	1
Leonards V B	1		1
rand Falls, N.B. entreville, N.B. .ndover, N.B.	1		1
entreville, N.B		1	1
ndover, N.B	1:	1	1
roostook Junction, N.B	1	1	9
ichmond Road, N.B	• •	1 1	1
anterbury, N.B	2	1	1 2
C. Stephens, N.B.	1	2	3
pper Mills, N.B.		ĩ	1
filltown, N.B		1	1
Andrews, N.B.	i		1
Vilson's Beach, N.B		i	1
Velshpool, N.B.		1	1
rand Manan, N.B		1	1
legantic, P.Q	1		1
acquetteville, P.Q	1		1
eebe Junction, P.Q	2		2
eorgeville, P.Q		1	1
Iagog, P.Q		1	1
lighwater, P.Q	2		2
Iansonville, P.Q	$\frac{1}{2}$		1 2
Control Villa P.O.		i	1
forton Mills, P.Q		1	1
acolle Junction, P.Q		i	1
Louse's Point, N.Y.	2		2
			2
t. Albans, Vt Ialone, N.Y.	1		1
ortland, Me		1	1
relighsburg, P.Q cyan Junction, P.Q.		1	1
cyan Junction, P.Q	1		1
ornwall, Ont		2	3
Iorrisburg, Unt		1	1
oquois, Ont		1	1
rescott, Ont		• •	3
rockville, Ont	1	i	1
ockport, Ontananoque, Ont		1	1
ingston, Ont		3	3
eseronto, Ont		i	i
ath, Ont		Î	i
elleville, Ont		1	1
icton, Ont		1	1
renton, Ont		1	1
righton, Ont		1	1
Cobourg, Ont		2	2
Port Hope, Ont		1	1
Total	29	41	70

In addition to the above I have had two relieving officers whose duties were to relieve officers when on their holidays and to assist when necessary at the different ports at times when the traffic is unusually heavy.

The total number of admissions and rejections at the above mentioned ports during the past year, were:—

Admissions			٠														26,960
Rejections																	2.980

Taking twelve of the principal ports in the eastern district, I find the following interesting comparison of the admissions and rejections during the past two years.

Name of Port.	Admissions	Admissions	Rejections	Rejections
	1910–11.	1911-12.	1910-11.	1911-12.
McAdam Junction, N.B St. Albans, Vt. Highwater, P.Q Beebe Junction, P.Q Noyan Junction, P.Q. Rouse's Point, N.Y Coaticook, P.Q Malone, N.Y Cornwall, Ont Megantic, P.Q. Prescott, Ont Brockville, Ont.	3,461 3,521 3,293 1,056 899 1,244 1,381 443	4,896 4,702 4,039 3,583 2,161 1,664 1,434 1,218 493 421 361 277	101 116 214 86 170 273 113 114 76 33 149 3	89 312 260 225 326 588 163 289 104 15 209 14

The total number of admissions and rejections along the border from the Atlantic to the Pacific during the past year were, admissions, 133,710; rejections, 22,033, compared with 121,451 admissions and 15,004 rejections in the previous year.

These figures, I think, are sufficient evidence to show the growing importance of the border inspection. Not only has there been a large increase in the admissions but most striking is the great increase in rejections, and this is particularly noticeable when the figures of the rejections along the border are compared with the number of rejections at the ocean ports, which, during the past year, were 972. From such a statement it is very plain that a careful watch will have to be maintained along the International boundary as it is evident there are large numbers in the United States who are anxious to gain admittance to Canada, and who are looked upon as undesirable settlers for this country.

In explanation of what may appear to be the small number of rejections as compared with the number of admissions in the eastern district, in comparison with the figures of the other districts, I might state that there is a large immigration from the New England States via ports in the eastern district to points in Canada. The vast majority of these are most desirable settlers, and very few have to be rejected. In the eastern district there are no large American cities in close proximity to the Canadian border. The undesirables who are rejected at the border come chiefly from Boston, New York, Philadelphia and some of the large factory towns in New England. The railway fare from these towns to points in Canada is a considerable item, and parties knowing the regulations required of them before entering Canada, will in most eases see that they can qualify before starting out on such an expensive trip, and those who are rejected at the border and returned will hesitate before again spending their money in attempting to enter Canada, hence the officers in my district are not often troubled, with the same party trying a second time to gain admission. These conditions are also responsible to a great extent for the small number of prosecutions.

In the eastern district inspection of passengers takes place on the following lines of railway:—The Canadian Pacific Grand Trunk, New York Central (including the

Rutland and the Ottawa and New York), the Boston and Maine, the Maine Central, the Orford Mountain and the Washington County. The staff of immigration officers now employed on the trains on these lines of railway are able to do their work efficiently so far as the inspection of passengers is con-erned. At some of the ports a good deal of attention has been given to inspecting freight trains and many parties who were attempting to enter Canada by stealing rides on these trains have been taken off and sent back. Other good results are being accomplished in some of the country districts where telephones are in use by the farmers. Many tramps on their way to places in Canada, who have been in the habit of asking for meals at these farm houses and who have been found sleeping in the barns, are now often arrested by the farmer notifying the immigration inspector over the 'phone, and those found to be American citizens are taken in person by the Canadian officer to the American officer and returned to the United States, thus ridding Canada of some very undesirable and at times dangerous individuals.

One of the most difficult matters to contend with is where persons in the States will purchase tickets to the town nearest the Canadian border and then attempt to walk in by road and board the train at some station on the Canadian side. These conditions have been receiving careful attention from the officers and some excellent work has been done with a view to checking it, and, with the appointment of the extra officers which I have requested at certain ports, it is my purpose to devote special attention to

this phase of work.

In view of the change made last October when the Chinese branch was transferred from the Trade and Commerce Department to the Immigration Department, this has caused some extra work for the officers at two of the ports in the eastern district, viz., Highwater, P.Q., on the C.P.R., and Athelston, P.Q., on the N.Y.C.R., as a large

number of Chinese pass through these two ports during the year.

It is very pleasing for me to be able to report that the officers continue to take a keen interest in the work, and so far as I am aware no complaint has reached the department from the travelling public or transportation officials regarding the work or conduct of any officer in my district during the past year. Knowing as I do the difficult task which these officers have to perform in the discharge of their duties, such a record as is presented by the figures showing the number they admitted and rejected without a complaint to the department regarding their work or conduct, is, I think, the strongest evidence possible to show that the men are doing their work efficiently and in a manner satisfactory to all.

Last July I received instructions to meet the party of British press men who were making a tour of Canada. I met them at Rimouski and spent three weeks with them travelling through the Maritime provinces, Prince Edward Island, Quebec and a portion of Ontario. They were most anxious to obtain all the information possible regarding the resources and opportunities in these provinces, and I need not say it was a great pleasure for me to spend so much time in their company and do what I could

to make their trip a pleasant and profitable one.

In addition to the border work I have had charge of the inspection of the passengers arriving by steamer at Portland, Me., during the winter months destined to points in Canada. During the past winter the White Star, Dominion, the Cunard and the Allan lines have had regular sailings from British ports to Portland, and the number of passengers for Canada will show a very large increase this year over last. By the cud of April it is fully expected that over 10,000 settlers for Canada will arrive at Portland. A very large number of these are from the British isles, whilst the foreigners are chiefly from northern Europe. I was very much impressed with the good class of immigrants arriving, the large number of young men and young women, and on some of the steamers the families of bright and healthy boys and girls were a matter of much favourable comment.

The accommodation at Portland for the handling of such large numbers is altogether inadequate, but I understand the Grand Trunk Railway Company, who are the

owners of the immigration building, intend before another season to enlarge the premises so that there will be ample room and proper equipment for the inspection and comfort of the passengers. This portion of my work has proved most interesting to me, bringing me as it has in contact with so many people coming to this country for the first time and giving me an opportunity of seeing the different classes of immigrants, affording me in a small way at least an opportunity of extending to them a welcome in this new land of promise.

I would like to take this opportunity of expressing my appreciation of the courtesy shown me by the American immigration officials at Portland, and of their desire under existing circumstances to assist me in any way they could to facilitate the inspections of the Canadian passengers.

In reviewing the border work since its inauguration four years ago, I feel there are many things for which we who have had charge of the work can be thankful.

When the border inspection was first commenced the object and aim of this work was for some considerable time misunderstood by the travelling public, the transportation companies and by the press throughout the country. Our officers were inexperienced in the work, and, owing to the wrong impressions abroad, the duties of an immigration inspector were not only most difficult to perform but his position was a very unpleasant and thankless one. To-day a great deal of this wrong impression and misrepresentation of the border work has disappeared. The press instead of criticizing and finding fault with what they termed so much red tape and unnecessary inspection of passengers, realize the importance of the work and in many instances have commended the department for the means they are taking to afford a proper selection of those who should be admitted to Canada and of protecting our country from undesirable citizens.

The police magistrates, municipal and other officials of the various border towns to-day are loud in their praise of the good work being accomplished by the immigration inspectors. The conductors, brakesmen and other officials of the transportation companies are now only too ready and willing to assist the officers in any way they can to enable them to carry on their work, whilst last but not least the travelling public themselves are beginning to realize that this work is in the interests of the country, and as a rule are ready and willing to answer the questions put to them by the inspector.

Suitable buildings have been provided at all the principal ports in the eastern district for the inspection and detention of passengers. These buildings are proving to be of great assistance to the officers in the performance of their duties, and at the same time afford comfortable accommodation for passengers who may be detained for any reason. With the erection of one or two more during the present year the district under my charge will have all the buildings that are necessary.

With a staff of immigration inspectors, such as I have in my district to-day, men of good conduct, gentlemanly in their manner, showing common sense and good judgment in their decisions, and fully recognizing the importance of the service, I have every reason to have ample confidence in their intelligence and in their desire to carry out the wishes of the department with respect to the enforcement of the immigration regulations, and I feel satisfied that the good progress which has been made will continue and we can look forward with confidence regarding the work in the future.

I am glad to say the best of harmony exists between the American and Canadian border inspectors, and that much good work has been accomplished by the willing co-operation of the officers of the two countries.

Allow me to express my appreciation of the consideration you have given to my suggestions and recommendations during the past year.

Your obedient servant,

T. B. WILLANS,
Travelling Immigration Inspector.

No. 2.

REPORT OF TRAVELLING INSPECTOR H. G. HERBERT.

OTTAWA, April 1, 1912.

The Superintendent of Immigration, Ottawa.

SR,—I have the honour to submit my third annual report as travelling immigration Inspector.

The section of frontier work of which I have charge extends from Toronto to the south-eastern corner of Manitoba, and is known as the Central Border District. My duties include a supervision of all the passenger and immigrant traffic entering from the United States into Canada at the regular ports of entry in this district, and, as far as possible, the checking of the 'smuggling' of prohibited immigrants. This illegal traffic is not carried on in broad daylight but most frequently under cover of night, and it no doubt occurs at numerous points in my district. We look for it particularly along the Niagara River frontier, the shores of Lake Erie—the Detroit river and St. Clair river frontiers—at points on Lake Huron—along the St. Mary's river (above and below Ste. Marie)— on Lake Superior and throughout the Rainy River and Rainy Lake district.

On March 31, 1912, seventy-eight immigration inspectors were on duty in my district. Their allotment to the thirty-eight recognized ports of entry is given in table A, hereunder, which has been arranged in geographical order.

INCREASE IN THE NUMBER OF REGULAR IMMIGRATION INSPECTORS.

Although the total number of inspectors in my district has not increased to any great extent during the past four years, it will be seen from the following table that the department has steadily followed a policy of having this boundary inspection of immigration attended to by its own special officers, who can devote their whole time and attention to such work. The number of regular immigration inspectors has accordingly grown from 17 to 42, as, from time to time, the Customs inspectors have been relieved from immigration duties at the busier ports. Responsibility being no longer divided better system and discipline are possible and the efficiency of the staff has, I think, been more than doubled. On account of the rapid growth of the work of the Customs inspectors it is only at the less important ports that the department should rely upon the assistance of these officers for immigration inspection work.

No. of inspectors on March 31.	19	909.	1910.	1911.	1912.
Immigration inspectors		17	25	29	42
Customs immigration inspectors		66	52	56	36
Total		83	77	85	78

TABLE A.

CENTRAL BORDER DISTRICT.

Showing the Number of Inspectors on Duty and the Number of Immigrants admitted and rejected by them.

Name of Port.	Regular In migration Inspectors.	Customs Immigration Inspectors.	Total No. of Inspectors.	Immigrants Admitted.	Immigrants Rejected.
Toronto	1	1	1		16
Niagara on Lake and Lewiston, N.Y			$\frac{1}{2}$	328	84
Queénston. Niagara Falls Bridgeburg. Fort Erie	9 3 1	2 2 2 3	11 5 4	3,030 2,118 178	3,341 1,323 427
Erie Beach. Crystal Beach. Port Colborne Port Dover	1	1 1	2 1 1	18	
Port Burwell Port Stanley. Rondeau		1 1 1	1 1 1	1	1
Kingsville. Amberstburg. Windsor. Walkerville. Walpole Island.	9 9	1	1 9 2 1	12 4,818 258 13	2,614 519
Port Lambton Sombra Courtright Samia		i 1 1	1 1 1	47 15 2,595	531
Point Edward Goderich Owen Sound Collingwood.		1 1 3 1	1 1 3 1	1	15
Midland Depot Harbour. Parry Sound Little Current (Manitoulin Id).		1 1 1 1	1 1 1	1	
Cutler Blind River. Thessalon Sault Ste. Marie		1 1 1	1 1 1 4	8 4,935	1,02-
Fort William. Fort Frances	1 1 3		1 1 3	2,149 1,066 6,189	137 28 827
Totals	40	36	76		
Relieving Inspectors in addition to those at Lewiston and Crystal Beach	2		2		
- Totals	42	36	78	27,795	11,03

ADMISSIONS FROM THE UNITED STATES.

 Λ comparative review of figures of the immigration across the border during the past four years illustrates the vast increase of one phase in the work of your inspectors.

Fiscal year	of 1908-09	total immig	ration from	U.S	 	59,832
44	1909-10	44	44		 	103,798
	1910-11	"	"		 	121,451
44	1911-12	44			 	133,710

Increase equals 123 per cent in 1911-12 over 1908-09.

Of the 133,710 immigrants who entered Canada from the United States between April 1, 1911, and March 31, 1912, all were individually and carefully examined by the border inspectors who are distributed along the whole length of the International boundary. Of this total 27,795 were examined by the inspectors in my district.

REJECTIONS AT THE BORDER.

The total number of immigrants rejected from the whole of Canada (ocean ports and border ports) during the last fiscal year was 23,006. The rejections at ocean ports were 972, while no less than 22,034 were rejected at the various ports along the border. These are startling figures but it must not be supposed for a moment that they refer solely to rejections of United States citizens, who, as a matter of fact, make up but a small percentage of this enormous total. It must be remembered that the neighbouring republic has enormously increased, and is increasing, its population by the immigration of people whose racial customs and habits of thought are entirely unsuited to the conditions and requirements of Canada. These enter the United States with comparative freedom, and, attracted in considerable numbers towards our country by its superior advantages, attempt to enter Canada at the back door, so to speak. This is the chief problem of the Border Service.

A comparative review of figures of immigrants rejected at the border during the past four years is interesting as proof of the increased work of a less pleasing character.

Fiscal year	1908-09 total c	f immi	grants reje	cted	 	4.580
44	1909-10	64	44		 	8,997
44	1910-11	6.4	4.		 	15,404
	1911-12	14	6.6		 	22,034
То	tal for four yes	ars			 	51,015

Of the 22,034 rejected last year, 11,031 or more than half the number, were rejected by the inspectors in my district. In other words, after a searching and separate examination in each of these cases, your inspectors were forced to decide that Canada would not be a gainer but most probably a heavy loser by the admission of any member of this huge army, which included many misfits, possible public charges and criminals also. These figures would have been even greater but for the disinclination on the part of many of the prohibited classes to trifle with regulations whose rigid enforcement has been given the widest publicity in the newspaper reports of vigorous prosecutions along the whole International boundary.

'THE WHEAT FROM THE CHAFF.'

The policy of selection has been most strictly followed. What better proof can be given of the increasing care and vigilance of the Border Service than that given in the following return:—

I_{11}	1908-1909 1	for every 1,0	00 immigrants	admitted	76	were rejected.
In	1909-1910	н	11	11	86	11
In	1910-1911	11	11	11	128	H
In	1011-1012				105	

PROSECUTIONS UNDER THE IMMIGRATION ACT.

More than 400 prosecutions for breaches of the immigration regulations were undertaken by the officers in my division during the past year, and in all but a few cases these were conducted without any legal assistance. Many of these cases presented unusual difficulties, but the high percentage of convictions obtained (as shown in the

following report) is the best evidence of the careful attention given by your inspectors to a new feature in immigration work.

PROSECUTIONS—CENTRAL BORDER DISTRICT.

Name of port.	Informations laid.	Convicted.	Dismissed.	Withdrawn.	Amount of Fines.
Niagara Falls Bridgeburg Fort Erie Windsor Walkerville Sarnia Toronto* Sault Ste, Marie	107 12 84 8	106 107 12 80 8 10 1	1 0 0 4 0 0 0 0 0	0 0 0 0 0 0 0 0 3	1,956 00 1,623 00 118 00 1,325 00 125 00 215 00 400 00 877 00
	401	383	7	3	\$6,639 00

^{*}Toronto-8 cases unfinished.

A detailed report of the interesting features in some of these cases would furnish good material for books of detective stories, of comedy—yes, and of tragedy too. Such a report would at any rate win increased respect for the alertness and patience of the inspectors concerned.

This feature of border work demands a great deal of time. Special attention to this has been considered necessary in order to make it known that Canadian laws must be respected. In their determination to reach Canada many of the prohibited classes have resorted to the most devious methods of evasion and misrepresentation. To combat this, calls for increased vigilance and the records will show that your inspectors have proved themselves equal to almost every kind of emergency. The wide publicity given to reports of these prosecutions in both countries has no doubt done much to deter many from attempts to evade your inspectors.

The following are samples of cases dealt with by your border inspectors. The immigrants referred to were for various reasons inadmissible to Canada, and, for brevity, I shall quote merely from headlines taken from newspaper reports of the

- (a) Four Bulgarians in a row boat at night dodged the ice floes on the wide reaches of the Upper Niagara. Landed several miles from inspectors' post. Captured on arrival. Heavily fined and deported.
- (b) Five Macedonians taken from a locked car on freight train in mid-winter. Concealed there for hours. Were nearly frozen to death when discovered on arrival at the border.
- (c) Italian immigrant with Canadian citizenship papers proved to be imposter. Prominent Italian banker in Canada pays a penalty of \$250 for supplying the false papers.
- (d) Armenian interpreter attached to Canadian law courts returns from Buffalo accompanying fellow countrymen. Tried to persuade inspector that these were residents of Canada. Convicted and fined \$500 and costs.
- (e) Macedonian resident of Toronto for trying to smuggle four countrymen into Canada via devious routes, convicted and fined \$400. Skipped the country on day of trial. Later apprehended by inspectors and again brought to justice.

The long stretches of navigable rivers opposite such large cities as Buffalo and Detroit present difficulties in dealing with the efforts of certain classes to gain admission to Canada. There are rivermen with launches and boats who make a business of smuggling aliens into Canada. In many cases the aliens captured by your inspectors

have admitted paying as high as \$25 and even \$50 each for landing in Canada at a spot supposedly safe from immigration inspection. It is almost impossible to stop this traffic altogether but the assigning of an officer to patrol the shores at unexpected intervals has done much to check the traffic. The appointment of local officers, whose movements would soon be known, to guard any given spot would only divert such traffic a few miles up stream or down stream. There have been numerous captures under this system of patrol.

OFFICE ACCOMMODATION AND DETENTION ROOMS.

It is with pleasure that I refer to the improved conditions under which your inspectors are now performing their work in my district. Two years ago there was no office accommodation of any kind for the use of border officers. Much of their work was done on railway platforms, on ferry docks and in general waiting rooms at the various depots under conditions which made the work doubly hard, excepting in one or two ports where the courtesy of the Customs officials permitted the sharing of insufficient accommodation—often to their own inconvenience. The compliance of the various companies with recent legislation on this subject has quickly remedied this disagreeable state of affairs. The principal ports have been supplied with suitable offices and accommodation for the examination and detention of immigrants. In most cases these have been specially built to conform with plans prescribed by the department, and, as required by law, these accommodations are supplied, maintained and equipped at the expense of the various transportation companies.

LIST OF BUILDINGS—CENTRAL BORDER DISTRICT.

Border Port.	Nature of Accommodation.	Supplied by.		
Niagara Falls	1 office and 1 room	Grand Trunk System.		
	1 room	Railway Arch Bridge. Upper Steel Arch Bridge.		
BridgeburgFort ErieCrystal Beach.	2 offices and 2 rooms 1 office and 1 room 1 office and 1 room	Michigan Central RR. Fort Erie Co. Lake Erie Excursion Co.		
	. 1 office and 2 rooms. . 1 office and 3 rooms. . 2 offices and 1 room.	Canadian Pacific.		
Walkerville	. 1 office and 2 rooms	Walkerville Ferry Co.		
Sault Ste. Marie	1 office and 3 rooms	Port Huron Ferry Co. Canadian Pacific.		
Port Arthur	. 1 office and 1 room (d)	Government. Booth Line & Can. Pacific.		
	. 1 office and 1 room (b)			

Note (a) Arrangements not quite completed. (b) Plans agreed upon and building commenced. (c) Temporary accommodation only. (d) Built by Government on water front for winter patrol of ice buildee.

THE BORDER INSPECTORS.

Border inspection as now systematically established, enters upon its fifth year well organized and in a creditable state of efficiency. This rapidly growing branch of the government service has already won a name for its vigilance, its activity and its thoroughness. Its activity in the initial years was a subject of much adverse criticism for the reason that its objects were not then sufficiently understood. To-day the atti-

tude of the travelling public, and of the stay-at-home public also, is, I think, one of active sympathy with, and approval of, the efforts of your immigration inspectors to protect the land we live in against the influx of undesirables.

Speaking from a personal knowledge of the majority of the inspectors who are doing this important out-post work, I can only say that few officers in the service of Canada have worked harder to obtain, or better deserve, the appreciation of the country at large. No longer the subjects of unreasonable and unjust attacks from unexpected quarters, your inspectors take an ever increasing interest in their duties, and find more pleasure in performing them politely but fearlessly.

During the year now under review I was called upon to investigate three complaints against the actions of inspectors in my district. In only one case did I find reasonable cause for complaint, and your prompt dismissal of the officer involved is the best assurance the public can have that the department insists upon the exercise of civility, tact, and good judgment at all times—particularly in emergencies. Considering the difficult and, at times, delicate nature of much of the inspection work, there is room for congratulation that complaints have been so few.

I regret having to refer to the loss by death of two of your officers during the year—Mr. Charles Quallins, of the Windsor staff, an old servant of the government, and Mr. Walter R. Meyers, the inspector-in-charge at Sarnia.

Indice with pleasure that the department has appointed a Travelling Immigration Inspector who will devote his time to systematising the work at the various ports on the British Columbia border. Here I might mention that one of the most experienced and competent inspectors in my district, Mr. C. E. Willox, inspector-in-charge at Niagara Falls, was temporarily transferred to the British Columbia district to assist in settling some difficulties which arose in connection with the wholesale smugling of prohibited aliens. He returned to his own port after an absence of six months. I think that this experiment could be followed further with equally successful results. The comparison of methods and exchange of ideas must be beneficial to every one interested.

Along this line, the work of the four Relieving Inspectors in my district. Messrs. W. R. Little, Guy Condon, Austin J. Murphy and W. J. White, junior, have assisted greatly towards uniform methods. Their transfer from port to port to relieve inspectors absent on leave, or on account of sickness, and generally to assist in emergencies, has given them a knowledge of the country and of the conditions at various ports which is necessary for a proper co-operation between the different staffs.

AS OTHERS SEE US.

For the further encouragement of those engaged in immigration inspection, I would like to refer to a three-page article which appeared in the Saturday Evening Post of August 26, 1911, written by Albert J. Beveridge and headed 'Our Canadian Cousins—How they handle the Immigration Problem.'

The article is a generous appreciation of Canada's policy, laws and regulations 'administered by officers carefully trained and in enthusiastic sympathy with this policy.' After several complimentary references to the border service, appears the following in a footnote:—

'Author's note.—Some say that the work of the Canadian immigration agents and inspectors is far from ideal. Wherever abides the Anglo-Saxon, abides also grumbling, and undoubtedly there is ground for it. But, on the whole, Canada's immigration service is the best in the world. This truthfully may be said even when conceding that there is room for improvement in Canada's inspection service and immigration propaganda.'

RELATIONS WITH U.S. IMMIGRATION STAFF.

A report of my work would not be complete without a reference to the excellent feeling which exists between the immigration staffs of Canada and of the United States. This is one of the pleasant features of work which might otherwise be disagreeable. Much of the work takes on an international aspect and but for a complete accord between the staffs to the north and south of the 'imaginary line' this could at times be productive of rivalry and friction. The recent dismissal of the one inspector who disregarded the rights of the officers across the line, is regretted by the staffs of both countries. But it is satisfactory to be able to point to this as being the only instance where there has been a departure from the rule that the best of relations and mutual confidence do exist and must exist.

An incident which happened during the year is worth recalling. At no port on the border are the conditions more difficult than at Niagara Falls, where both countries maintain a large staff. The U. S. Inspector-in-Charge was recently transferred to the West. On the eve of his departure he was given a royal send-off at a banquet in Canada given by Canadian inspectors.

Upon my numerous visits to U. S. border ports I have received not only friendly and courteous treatment but practical and valuable assistance also from the U. S. officers. It occurs to me that a systematic co-operation may be necessary some day in order that certain problems may be successfully dealt with by the two countries. This should be an easy matter where the spirit of co-operation already so largely exists.

THE CO-OPERATION OF MUNICIPAL AND OTHER AUTHORITIES.

An encouraging feature of border work is the increasing co-operation of the police magistrates, the municipal authorities and the provincial and municipal police. When conferring recently at Port Dover with Commander Robinson of the C.G.S. Vigilant cruising on Lake Erie in the fisheries protection service, regarding the reported crossing of Lake Erie by prohibited aliens in fish tugs from the United States, he expressed his willingness to attend to any immigration duties which might be assigned to him with the consent of his department. To the generous assistance of the Customs officials is due much of the earlier success of this work. This assistance is still readily given wherever required and it is gratifying to note the increased interest taken in immigration work by the officials in other departments, not only in the border districts but in the inland towns also. This all round co-operation is the best indication of a national sympathy with the objects of border inspection.

GENERAL REMARKS.

During the fiscal year I made more than 150 visits of inspection to the ports in my district. Apart from a general direction of the varied duties of the inspectors at these ports, a considerable part of my time was devoted to the investigation of various matters affecting the different districts throughout Ontario. Numerous complaints were submitted of the illegal entry of prohibited aliens to the inland cities and towns. The actual cases were not numerous and were promptly dealt with. The importance of keeping in close touch with the labour conditions in the larger towns was not lost sight of. The preparation of plans for, and the arrangement of all the minute detail in regard to, the numerous buildings referred to earlier, have occupied a great deal of time which in the coming year can be devoted to other features of the work. Much of my time was given to the various prosecutions referred to. The collection of evidence in special cases necessitated frequent trips outside of my district. In connection with one case alone I was obliged to seek evidence in Pennsylvania, Massachusetts, Connecticut and New York in addition to six or seven towns in Canada.

In company with my co-worker Mr. Willans, travelling inspector for the eastern district, I made two trips to the Atlantic ports to assist him and his staff in the inspection of the spring rush of overseas immigrants via Portland. The cheery optimism of the British immigrant was strikingly illustrated on the arrival of the SS. Megantic at Halifax with 1,800 immigrants for Canada, in weather which was exceptionally bleak and disagreeable for Halifax at that season. Four or five inches of wet snow made an uncomfortable mess of the decks, docks and landing places. Totally unprepared and insufficiently clad for such a chilly reception, about 800 of the party landed at Halifax to the accompaniment of a bitter wind and driving sleet. party was made up chiefly of women and young children who were on their way to new homes which had previously been made ready for them in the far west. The children's bare legs and unprotected hands were blue with the cold as they assisted their mothers in gathering together the 'too elusive luggage.' But not a single complaint was uttered during the long and tedious process of landing so large a party. They all appeared quite happy. The ready smiles of those young children whose faces were pinched with the cold, conveyed a lesson in optimism which was not lost on those who witnessed the landing. The same cheerfulness possessed the remaining 1,000 passengers who had chosen their route to Canada via Portland, Maine. Our official party accompanied these from Halifax for the purpose of completing a thorough inspection before their arrival in Portland. The inspection began early on the following morning-Sunday-and the second cabin was crowded to the utmost with those waiting to see the immigration officers. With such a crowd the waiting was of necessity long, but there was no evidence of impatience. Instead, the whole party appeared rather to enjoy the formalities. Singing, which began early, was kept up by the whole party. It seemed as if a week's practice on this trip had developed a big choir and that every individual on the ship was a lusty contributor to a mass of harmony which though ordinarily impressive and enjoyable, was at this time apt to be disconcerting to the officers engaged in the inspection. No one complained, however, and your inspectors worked on until the infectious spirit of the occasion compelled absolute surrender. The music had sent all thought of immigration rules and regulations to Immigrants and inspectors too were now doing their level best in the refrain of 'Pull for the Shore, Sailors,' and 'There's a land that is fairer than Day.' We were unable to find any misfits in that party which, collectively, was the finest I have ever assisted to inspect.

CHINESE IMMIGRATION.

The inspectors in my district are giving their best attention to their new duties regarding Chinese immigration, the administration of which was on October 2, 1911. transferred from other departments to the Immigration Department.

In conclusion I must express my appreciation of the favourable consideration you have given to my recommendations and of all the department has done to improve the conditions of service of its willing and loyal servants on the border line.

Your obedient servant,

H. G. HERBERT,

Travelling Immigration Inspector.

REPORT OF THE CHIEF MEDICAL OFFICER.

To the Superintendent of Immigration, Ottawa.

SR,—I have the pleasure to trnsmit the annual report of the chief medical officer

relating to immigration for the fiscal year 1911-12.

The work of medical inspection during the past year has followed closely that for the previous year. All the seaports both on the Atlantic and on the Pacific coasts which are made ports of entry for immigrants are now equipped with officers for their medical inspection and at all there are buildings fairly commensurate with the needs of each port. There has been crected at North Sydney, Cape Breton, which is the port of entry for the tri-weekly steamer from Newfoundland, a neat building with waiting rooms, detention room and offices for the agent and medical officer alongside the Customs wharf, where the work may be done satisfactorily and expeditiously. As most of the immigrants are natives of Newfoundland it is seldom that detentions or rejections are made at North Sydney, now that the indirect entry of southern Europeans via St. John's and thence by railway to Point à Basque has ceased. At South Sydney the occasional admission of undesirables by the ore boats from St. John's has also been stopped through the action of the agent at that port.

The provision for the detention of immigrants at Pacific Coast ports has hitherto been fairly adequate. The hospital building at Victoria is very complete in all respects; that at Vancouver is demanding some new arrangements owing to the extension of the Chinese inspection work, while at Prince Rupert last autumn I made a careful survey of the situation with a view to recommending the most practical method of dealing with the increase of immigration, which may be expected in the

near future with the completion of the Grand Trunk Pacific railroad.

With the increase of immigration at the several main ports of entry, it has been found expedient to increase somewhat the medical inspection staff. Hence an extra officer has been appointed at Halifax, five extra officers at Quebec, and a medical

officer at Victoria, B.C.

Turning to the results of the work, it may be said, in general terms, that each succeeding year appears to bring a larger proportion of immigrants of the better classes, while the close inspection before being given their passage, of assisted immigrants, tends greatly to lessen the work of eliminating the unfit after arrival at Canadian seaports. In two previous reports reference has been made to the necessity still existing for better and more up-to-date accommodation on some of the vessels carrying immigrants. Old vessels may be excused perhaps in the temporary rush of the opening spring season; but to find as I found on a ship arriving in Halifax in January a wash-room reached only by crossing an open deck covered with six inches of snow and ice and when reached found to have all the fixtures frozen up, cannot be a condition which should longer be tolerated, especially in one of the larger lines having many of the best vessels in the service. Other occasional complaints, regarding poor food and the petty taxing of immigrants by stewards on a certain new line of ships, have been received; but except in the matter of overcrowding and the lack of adequate means for ventilation, the immigrant vessels arriving in Canada to-day show a notable advance on old time conditions. This may be estimated when the total of deaths at sea in a season's immigration are found to be almost negligible as seen in a later table.

The problem of better and more exact medical service on the various SS. lines is still one demanding serious consideration with a view to its solution. It was found in

the statistics published in a paper read by Dr. J. D. Pagé, the chief medical officer at Quebec, that the average voyages of medical officers arriving at that port last season were as follows:—

'During the seven months of navigation on the St. Lawrence, we had last year 96 different doctors on 36 vessels; this year, 106 on 44. The small fees of \$35 to \$50 per month assigned to ships' surgeons, explain sufficiently these frequent changes and render quite vain any hope of amelioration of the inspection on the ships so long as this system of remuneration prevails.'

It is apparent that the remedy for such temporary and therefore unsatisfactory service will only be found in making such positions more permanent by better remuneration. Recalling what has been pointed out by myself in former reports and by every officer having had experience at the ports, that the best time and place for observing the immigrant thoroughly is during the seven or more days of the voyage, it does seem as I have suggested before that nowhere could the department improve its medical work so much as by paying a bonus to ships' medical officers for every voyage made, in which a satisfactory result of their work could be reported by our medical officer at the port of arrival.

Table I.—Showing Total Detentions on Account of Disease, with Rejections, in 1911-12.

Class of Disease.	Cause of Detention.	Number Detained.	Number Released.	Number Debarred.	Number Died.	Number in Hospital.
I. Contagious diseases	Measles Erysinelas Mumps	3 3 1	3 3 1			
	Cholera Chickenpox Fever	1 16 8	1 16 6	1	1	
	Totals	32	30	1	1	
II. General diseases	Alcoholism	5 40 1	3 20	18 1	2	
	Rheumatism	5 1 1 2	5 1 1 2			
	Laryngitis. Meningitis Bright's disease. Potts disease.	1 1 1	1		1	
	Nephritis	1 1 1	1 1	1		
	Arthritis	$\frac{1}{62}$	37	22	3	
III. Eye diseases	Trachoma	187 371	83 361	100		4 7
	Choroiditis. Defective sight. Loss of eye.	1 11 1	1 8 1	3		
	Ulcer of cornea	3 3 106	3 102 1			4
	Cataract Blindness Acute iritis	2 2 1		1 2 1		
	Totals	688	563	110		15
IV. Nervous system	Insanity	14 8 3	1 3	13 5 2	1	
	Locomotor ataxia Feeble-minded Observation of nervous	2 47	1 24	1 23		
	system	9 3 1 1	3 1 1	4 2		$\begin{bmatrix} & 2 \\ \dots & \ddots & \ddots \end{bmatrix}$
	Tabes dorsalis	88	34	51	1	2
V. Circulatory system .		14 7	9	5 3		
	Blood poisoning Salt rheum Varicose veins	1 1 3	1	3		i
	Totals	26	14	11		1
VI. Respiratory system.	Pneumonia	5 2 3	4 2 2 2	1		1
	Bronchitis	2				
	Totals	12	10	1		1

Table I.—Showing Total Detentions on Account of Disease, with Rejections, in 1911-12—Continued.

Class of Disease.	Cause of Detention.	Number Detained.	Number Released.		Number Died.	Number in Hospital.
VII. Digestive system	Appendicitis	1 1 2 2 11	1 1 2 2 3	8		
	Totals	17	9	8	• • • • • • • • • • • • • • • • • • • •	
VIII. Genito-Urinary system.	Syphilis. Pregnancy. Confinement. Gonorrhea. Chancroid Cystitis Blennorrhagia. Metrorbagia	2 4 6 9 2 1 1 1 1 2 1	2 1 9 1 1 1 2	2 5		
	Totals	29	19	10		
IX. The skin	Scabies Diséase of skin Ezzema Impetigo. Psoriasis Favus Tinea Pediculosis, Xeroderma	506 5 8 4 2 3 14 2 1	502 4 8 4 1	1 1 3		3
	Totals	545	535	7		3
	Abscess. Deafness Curvature of spine. Senility.	3 2 7	12 2 3	6 1 2 4	1	
777	Totals			107		
XI. Accidents	Fracture of arm Fracture of leg. Lameness Ankle sprained. Injured hip Fractured knee. Broken leg. Loss of leg. Cripple Dislocated hip Fractured patella.	2 6 1 1 1 2 1 1	2 2 4 1 1 1 1 2 1 1	1 2		
	Totals	20	15	5		
XII. Ill-defined causes.	High temperature Physical debility Inflammation of jaw. Sore neck Inflammation of arm General observation Diseased hips Seasickness Diseased glands Macrocephalus	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	93 9 2 1 1 1 19 1 2	2 13		2
			1400	10		,
	Totals		128	16		3
	Grand totals	1,697	1,411	255	6	25

the largest.

It is of much interest to note that the total of detentions, 1,697, for the year, is less than in the previous year, when it was 1,868; although the total immigration in 1911-12 is 354,237, as compared with 311,084 in the previous year. The difference in the number debarred or rejected is yet more notable, there having been only 255 debarred as compared with 580 for the previous year. As it is fair to assume that the medical inspection by officers at the ports becomes yearly more exact with experience we must conclude that both in type of immigrant arriving and in the greater sifting process both on the continent and in Great Britain is to be found the natural explanation of this satisfactory state of affairs.

The diseases in class I remain as in so many previous years, remarkably few, illustrating better, perhaps, than anything else, since such are so readily diagnosed, the care exercised at ports of departure. Cases of chickenpox are usually from a single case landed and detained for some other cause breaking out in hospital and infecting others before its true nature is apparent. The total 16, made the whole in this class 32, as compared with only 9 last year.

In class II of general diseases, is assembled the largest number of diseases which demand special attention. In the group is tuberculosis, which might perhaps be better placed in class I. The degree of careful medical observation is well gauged by the number detained on account of tuberculosis, it being 40 as compared with 21 in the preceding year. The other diseases of the group are few, 5 from rheumatism being

In class III, including all eye diseases, it is gratifying to note that the detentions of 1,030 for last year have been reduced to 688; those from trachoma from 463 to 187; from conjunctivitis, 226, increased to 371, and for observation of eyes decreased from 308 to 106. On the very great decline of true trachoma is to be found a quite remarkable decline in cases rejected, these for the group having fallen from 352 to 110 and for trachoma from 259 to 100. This lessening of trachoma must fairly be attributed to the close examination of continental immigrants before taking passage, since of the Austro-Hungarian group there were 21,651 this year as compared with only 16,285 last year and 9,805 Russians as compared with 6,621 in the preceding year. It is further noted that while the total British are 138,121 as compared with 123,013 last year or an increase of 15,108, the above fact is all the more remarkable as the increase in Austro-Hungarians this year is 5,366 and 3,184 of Russians. The Hebrews, in whom many cases of trachoma formerly were found, are much the same as last year, being 5,322, as compared with 5,146. The Syrian group has become almost a negligible quantity.

With class IV, dealing with nervous diseases, giving S8 as compared with 107, we must affirm once more our belief in great care being exercised in inspection in foreign countries; but the fact that 133 have been deported during the year for insanity, after being admitted to Canada indicates some measure of disregard of the warnings given against the emigration of persons with insane tendencies. There were, however, 14 detained for insanity as compared with 11 last year and 47 for feeble-mindedness as compared with 58, while 24 were rejected as compared with 22 in the previous year.

There were 5 epileptics debarred as compared with 8 in the previous year.

In class V, diseases of circulation, as we would expect in a class of population almost all in the earlier half of life, few diseases of this class are found. There were but 26 as compared with 44 last year, and only 11 debarred as compared with 39 last year.

In class VI, including diseases of respiration, only 12 were detained, as compared with 59, and but 1 debarred as compared with 18 last year.

Similarly in class VII, diseases of the digestive system, the total detained was but 20, and 8 debarred, as compared with 35 and 20 in the previous year.

In diseases in class VIII very few were detained; but in class IX, including skin diseases, the cases of scabies, occurring especially in Chinese at Pacific ports, increase

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very notably the number of those detained. Simple treatment being possible, only 7 were deported, three of these on account of favus, as compared with 6 last year.

In classes X and XI, their obviousness always keeps these diseases few in number. However, 13 were debarred in the first and 5 in the second as compared with 18 and 4 last year.

Grouped together in class XII are ill-defined diseases, most being grouped under fever and physical debility. That but few were debarred indicates that they were for the most part readily curable or temporary ailments.

Naturally following the detentions for the fiscal year, some remarks upon the total detentions from 1902 to 1911-12 inclusive may not be without interest.

While the causes are many, it will at once be seen that the chief cause of detention during the past ten years of inspection* has been from trachoma, the total being 2,727. The three other principal causes were: Lack of Funds (1,471), Liable to become a Public Charge (1,712), and Stowaways (509). It will be noted that medical causes, except many of the L.P.C. cases, which frequently included physical defectives, constitute almost three-fourths of the total 8,500 rejections for 113 causes. Altogether 92 were rejected at the ports for insanity and 96 on account of tuberculosis; 66 for defective vision and 113 for poor physique; 40 for epilepsy and 25 only for feeble-mindedness or imbecility. If we are to take the total as representing effective inspection, it would then seem that the total rejections in so large a number of immigrants represents but a very small fraction, and Canada must be credited with having received a population probably superior to an equal number in any given population in the country.

The rejections by nationalities is of some interest since it represents the relative positions from the physical, moral and financial standpoints of different nationalities of immigrants. It will be seen that notably the largest number was of Italians, especially in the three last years when a special money qualification was demanded. These indeed were the years of the largest number of rejections for almost every class. In it Bulgarians, Syrians, Armenians, Greeks and Turks figure the highest, if the percentage of Russians and Russian-Hebrews to the total immigration is worked out.

There is no better illustration of a steady persistence of good qualities than the small number relatively of Galicians, Ruthenians and Austrians rejected. Of orientals the Hindoos and Japanese both show a large proportion of rejections. Had there been no definite provision in the Immigration Act for deporting immigrants after admission, the history of this great mass of humanity in Canada could not in any great degree be written. But with the provision for deportation within two years of admission in the Act of 1906, the fortunes and character of these immigrants have been an open book. It will be noted that 5,626 have been deported as compared with 8,500 rejected at ports of entry, during the ten year period. Of all causes, that of becoming a public charge has been by far the greatest. The next most notable cause was criminality, and the year 1911-1912 far exceeds any other year in this respect.

Next in importance and number is the number of deported insane persons. Contrasted with the total in a native population the 648 insane deported out of a total of 2,002,184 immigrants admitted during the ten years would appear almost exactly the same rate per 1,000 as was found in the old population of the eastern provinces in the census of 1901. This, however, is not a correct comparison, since from the first year, 1901, to the last year, there have been the lives of immigrants of the first year continuing for the ten years; these of 1902 continuing for the nine years, and so on until the last year 1911-12, so that the years of this population are many more as a total than that of a single census year. What burden, however, Canada as a whole has been relieved of may be estimated when it is understood that not more than 25

^{*} Table of total detentions 1902 to 1911-12 will be found elsewhere in Report on Immigration, page 63.

per cent of an ordinary insane population are curable while the average years in asylums in Canada for the incurable insane before they die approximate thirteen.

The total deported for tuberculosis is but 271, which, remembering its prevalence in any ordinary community per 1,000, indicates a really small number, slightly more than 0.23 per 1,000. To these we may add 226 for general debility and 133 for mental weakness, both marking the inevitable amount of human wreckage in any number so great as the total immigration. That the total is small is seen in the total deportations being found to be 0.28 of one per cent in 1,978,379.

It will be noted that the total deportations for 1911-12 are greater than in the previous year by 175, or rather more proportionately than is accounted for by the greater number of immigrants. As already noted these were for the most part for

non-medical causes.

Comparing the medical causes for deportation we find them approximating those for the last two years.

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TABLE Showing total Deportations on account of Disease for three years.

	1909-10.	1910-11.	1911-12.
Abscess	2	2	2
Alcoholism	$\bar{0}$	9	5
Adenitis	0	1	0
Asthma	0	2	1
Blindness	0	0	$\frac{2}{2}$
Cancer	0	1	2
Catarrh	0 .	1	0
Crippled	0	0	2
Cystitis	1	0	0
Eczema	6	0	0
Epilepsy	8	10	10
General debility	27	1	1
Hermia	0	2	1
Heart disease	4	3	3
Insomnia	1	• 0	0
[njured	1	0	0
diocy	2	0	0
mbecility	1	0	0
nsanity	95	121	133
Iental weakness	9	17	9
Ialaria,	2	0	0
Iuscular atrophy	2	0	0
[eurasthenia	0	1	1
Vostalgia	0	1	0
aralysis	3	2	1
Rheumatism	8	2	7
enility	3	1	0
rachcoma	2	8	0
uberculosis	30	33	39
Zenereal disease	2	2	2
Varicose veins	0	0	2
	209	220	223

As remarked in a previous report a scrutiny of the table shows how slight are the changes in the causes of deportations in successive years; only in two cases will be found any marked increase, there having been 133 as compared with 121 cases of insanity deported, and 39 as compared with 33 cases of tuberculosis.

Previous reports have contained extended remarks regarding insanity, the chief point of interest being that in spite of a careful scrutiny of incoming immigrants a fraction in every year, or about 1 in every 3,500 immigrants, passes unobserved and later develops symtoms of insanity. Any study made of these in hospital has failed to prove more than a fair proportion as having had previous attacks, and it is only fair to assume that if in every 1,000 of the native population, three persons are insane, it is not too much to expect that $\frac{2}{5}$ of one in every 1,000 should develop insanity the year after arrival, in 350,000 immigrants.

Much the same class of remarks could be made regarding the 39 cases of tuberculosis deported; but as has been elsewhere remarked when authorities on the diagnosis of tuberculosis in our several communities remark that the ordinary physician would seem to require a special course in the diagnosis of tuberculosis, judging from the number of cases overlooked in ordinary practice, it must at once be confessed that anything less than an individual detailed examination of every immigrant arriving will fail to prevent an occasional case finding admission. The point may be illustrated from the fact that two sisters arriving in November last were both in hospital in Ottawa within a fortnight of their arrival, one suffering from an acute bronchial attack and the other discovered to be in the early acute stage of tuberculosis. A certificate from a qualified English physician asserted both were in good health just

before leaving, and indeed neither had been out of work at all nor had either, according to any evidence available, ever been ailing on account of chest disease. Yet more recently an English immigrant sent out to farm with the idea of improving his health worked four days and within two weeks was in the Tuberculosis Dispensary at Montreal. This young man, looking fairly well on arrival, after a week on deck in the sun, had within this time come to show the high fever and rapid pulse of active tubercular disease.

A prominent Canadian authority referring to the magnitude of the tuberculosis problem says:—'It is evident that the disease is enormously frequent in any civilized community, affecting at some time almost everybody, but it by no means follows that what may be regarded as a biological implantation will in all cases give recognisable clinical manifestations.'

In the summary of diseases reported regarding which official action has been taken, it is interesting to note that by far the largest number of deportations has taken place from Ontario, although the largest increase in population as shown by the census is in the prairie provinces.

Thus the increases were-

Ontario 340,261
Alberta
Saskatchewan
Manitoba
or nearly three times, while the deportations were for the ten years:-
Ontario
The western provinces

During the same period 707,745 United States immigrants entered Canada, or roughly seven-nineteenths of the total, and if we are to judge of the quality of the immigrants we are getting by the number deported it is surely a mark of high quality that while the total deportations for all nationalities were 0.28 per cent, for English 0.53, Scotch 0.30 and Irish 0.38, for Americans the percentage was only 0.08.

Remembering the very large volume of this migration from the United States, so high in quality, measured from the health standpoint, which here is intimately associated with the social standpoint, it becomes a pleasing prospect to think that judging by analogy from the progress of the immigrants to the Western States during the past fifty years, so many of their children, many of them of hardy German, Scandinavian or Russian descent, are entering Canada at the present time, and we may expect that an even less period will show the children of these and other races who have come direct from their own countries to Canada to have advanced under more favourable climatic and agricultural conditions, better laws and perhaps high social environment to at least an equally high degree of educational advancement, social progress and financial prosperity.

Your obedient servant,

P. II. BRYCE, Chief Medical Officer.



PART III

SURVEYS



SURVEYS

REPORT OF THE SURVEYOR GENERAL.

DEPARTMENT OF THE INTERIOR,

TOPOGRAPHICAL SURVEYS BRANCH,

OTTAWA, August 14, 1912.

The Deputy Minister of the Interior, Ottawa.

SIR,—I have the honour to submit the following report of the Topographical Surveys Branch for the year ended March 31, 1912.

Surveys were continued throughout the year in the western provinces, and subdivision was extended northerly into the Peace River block. Seventy-six parties were employed but only seventy-three of these worked the whole season, three parties being engaged for a short time only. The surveyors working under contract numbered thirty-four and were engaged on subdivision and timber berth surveys while the forty-two employed by the day were engaged on subdivision, resurvey and miscellaneous work of various kinds.

The spring and early summer of 1911 was abnormally wet and was the cause of much delay as surveyors had much difficulty in reaching the scene of operations. The surveyors report that the continued wet weather affected the proper ripening of the grain and that some low grade wheat was produced by being cut before it was properly ripened in order to escape frost.

The following statement shows the average number of miles of survey for each party during the last four years:—

1908	 	 	٠.	 			 	 ٠.	 	 	366	miles.
1909	 	 	٠.	 	٠.	٠.	 	 	 	 	412	66
1910	 	 		 			 	 	 	 	279	66
1911	 	 		 			 	 			280	66

One hundred and sixty-six whole townships and eight fractional townships were completely subdivided while a partial subdivision was made of three hundred and thirty others, and a resurvey either partial or complete was made of two hundred and twenty-five others.

The distribution of these parties by provinces is shown in the following table:-

	In Manitoba.	In Saskatchewan.	In Alberta.	In British Columbia.	Partly in one province and partly in another.	Total.
Paid by the day	3	3 16	12 13	6	15 2	39 34
time only	1		_	1	1	3
Totals	7	19	25	7	18	76

SURVEY OF BLOCK OUTLINES.

Seven surveyors were employed in running base lines and initial meridians in Manitoba, Saskatchewan and Alberta while three others were similarly employed in the Peace River block.

Mr. T. H. Plunkett, D.L.S., completed the survey, levels and building of mounds along portions of the fifth meridian and the twenty-eighth and twenty-ninth base lines west of the fifth meridian. These lines were run in 1910 by Mr. W. A. Ponton, D.L.S., but the ground was so wet that mounds could not be built. Mr. Plunkett reports last season's rains as being the heaviest in twenty years, but he succeeded in getting the low-lying portions of the lines mounded before the heavy rains set in.

The twenty-second base line was run west from the fifth meridian one hundred and twenty miles by Mr. A. H. Hawkins, D.L.S. He lost twenty days through wet weather and reports rain on ninety days out of one hundred and fifty-eight. The base line runs through fairly level country which has been overrun by fire and could be cultivated without very much expense in clearing. No hills over one hundred feet high were encountered on the line.

Mr. G. H. Blanchet, D.L.S., ran the twenty-third base line from the fourth to the fifth meridian. Upon the completion of this work he moved directly to the nineteenth base line between the same meridians and began the production of this line west from range 5.

Latitude observations were taken on the principal meridian and on the fourth meridian by Mr. J. A. Fletcher, D.L.S. The correct survey of the initial meridians is of the utmost importance as it is from these the base lines, which govern the township subdivision, are run. The southern portions of the meridians were run a number of years ago when the degree of accuracy under which work at the present time is done, could not be obtained by surveyors with the equipment at their disposal. Latitude observations were, therefore, necessary to detect and correct errors which might have occurred in the original surveys. Observations were taken at two places on the principal meridian, on the north shore of lake Winnipeg in township 48 and on the south shore in township 35. On the fourth meridian observations were also taken at two places in township 89 at the crossing of Clearwater river and in township 62 on the south shore of Cold lake.

Part of the seventeenth base line west of the third meridian was run by Mr. A. Saint Cyr, D.L.S. He also made a restoration survey of part of the fourth meridian south to the sixteenth base as the end of the seventeenth base fell in Cold lake and closing had to be effected on the adjoining base line. The country crossed by the seventeenth base line is fairly well wooded east of the crossing of Beaver river, but west from the river it is low and swampy.

Mr. E. W. Robinson, D.L.S., surveyed a portion of the second meridian and ran a portion of the fifteenth base line westerly therefrom. Along the second meridian the land is low and swampy while muskegs are numerous. They have, however, a hardpan bottom and none of them are of the floating variety. Although the temperature was at 80° Fahr. frost was encountered when digging the pits as the dry mossy surface absorbs the heat and acts as a very efficient non-conductor. With cultivation and drainage, however, this disadvantage will doubtless disappear.

Mr. A. W. Ponton, D.L.S., surveyed the principal meridian from the thirteenth to the sixteenth base line. He reports the country through which the line runs to be low, wet and swampy, with occasional outcroppings of rock. The surface, though mostly covered with trees of small dimensions is composed of black vegetable muck unsuited to agriculture.

Portions of the fourth meridian and of the twenty-fourth base line westerly therefrom were run by Mr. J. B. McFarlane, D.L.S. The fourth meridian was produced north to township 103. From township 95 north the soil is nine-tenths sandy with

jackpine and small muskegs. Fires sweep over this district about once every decade as the muskegs are not large enough to stop them. The country is not adapted to agriculture on account of the sandy nature of the soil, and rain, though fairly plentiful, falls generally in small drizzly showers.

SURVEYS IN THE PEACE RIVER BLOCK.

The Peace River block is a rectangular tract of land containing 3,500,000 acres. It is situated in British Columbia adjoining the Province of Alberta and was granted to the Dominion by the Province of British Columbia in exchange for land in the railway belt which had been disposed of by the province before the belt was placed under Dominion control. It was selected after an exploration by Messrs. J. A. Macdonell and J. A. Belleau in 1905-06, but the outlines had never been run to define its exact location. The survey of these outlines was a somewhat difficult undertaking.

During the past season four surveyors, Messrs. J. R. Akins, D.L.S., Geo. McMillan, D.L.S., O. Rolfson, D.L.S., and L. Brenot, D.L.S., were employed in outlining the

block and running base lines across it.

Mr. Akins ran the north boundary and assisted Mr. Brenot to complete the west boundary. He experienced great difficulties in transportation as the snow was deep till late in the spring. Unless a surveyor is on the ground early he cannot accomplish much work, the summer season being short in these high latitudes.

Mr. McMillan ran the twenty-first base west across the block. He was assisted on the western portion by Mr. Brenot and on reaching the western boundary Mr McMillan ran the portion south to the southwest corner of the block while Mr. Brenot ran the portion north. Mr. McMillan had set out for the survey of the base line as early as February and he experienced some very cold weather, the thermometer registering as low as —55° Fahr. but towards the end of March the weather moderated sufficiently to allow of the commencement of operations.

Mr. Rolfson ran the twenty-second base line across the block. He also experienced much difficulty in the transportation of supplies as the ice on Peace river west of Dunvegan was not strong enough to carry freighters oving to the swift current in the river. The country crossed by the base line is fairly well woooded although there are occasional open patches of scrubby prairie.

A report on the surveys in the Peace River district containing a description of the country, surveyors' reports on townships and general information has been published in pamphlet form.

INSPECTION OF CONTRACT SURVEYS.

Surveys which are executed under contract must pass a rigid examination before being accepted. Five inspection parties under Messrs. P. R. A. Belanger, D.L.S., C. F. Miles, D.L.S., E. W. Hubbell, D.L.S., L. E. Fontaine, D.L.S., and G. J. Lonergan, D.L.S., were employed on inspection work during the past season. They also performed small miscellaneous surveys which happened to be in the vicinity of their work. It may be worthy of note that it was necessary to send an inspector into the Peace River district for the first time, to examine contract surveys. This shows at what a rapid rate settlement is advancing. Some of the townships inspected lie over 300 miles from the nearest railway.

Mr. Belanger inspected contract surveys in Manitoba and made some subdivision and traverse surveys at Pointe du Bois on the Winnipeg river. He also surveyed a small settlement at Fisher Bay, the lots of which are all occupied by half-breed fishermen.

The inspection of contracts in Saskatchewan was done by Messrs. Miles and Hubbell, in the northwestern and north central portions respectively. Mr. Miles also made several miscellaneous surveys in the vicinity of his inspection work and subdivided a portion of the Cold Lake Indian reserve which was transferred to this department by the Department of Indian Affairs.

Messrs. Fontaine and Lonergan were employed on inspection work in western and northwestern Alberta respectively. Mr. Lonergan's work extended into the Peace River district as twenty-eight townships were subdivided there under contract last year.

BRITISH COLUMBIA SURVEYS.

Surveys in the railway belt were continued under Messrs. W. J. Deans, D.L.S., J. E. Ross, D.L.S., C. H. Taggart, D.L.S., A. Lighthall, D.L.S., and A. V. Chase, D.L.S.

Mr. Deans completed several miscellaneous surveys and traverses; he also surveyed a number of timber berths north of Vancouver.

Mr. Ross subdivided land in the district south of Kamloops, while Mr. Taggart was employed on miscellaneous surveys north of Kamloops.

Mr. Lighthall did some levelling at Woodhaven on Bedwell bay in order to determine if the slopes would permit of changing the courses of some of the roads. He was also engaged on subdivision survey, timber berth survey and delimitation of a portion

The examination of vacant lands in the Kamloops district, for purposes of classification into fruit land, farming land, grazing land, timber land and worthless land was continued by Mr. Chase. He also performed some miscellaneous subdivision in the vicinity of Lytton.

TOWNSHIP SUBDIVISION SURVEYS.

Subdivision surveys which were carried on in five hundred and four townships were executed by surveyors working under contract and also by some surveyors working under daily pay in localities where contract rates would not apply.

Some miscellaneous subdivision at The Pas in northern Manitoba was done by Mr. A. L. MacLennan, D.L.S. He also surveyed a booming site on Carrot river

applied for by the Finger Lumber Co.

of the railway belt.

Messrs. W. A. Scott, D.L.S., and J. Francis, D.L.S., were engaged on miscellaneous subdivision and surveys of coal claims in southwestern Alberta.

Mr. C. M. Walker, D.L.S., made a survey of land required for power purposes on Elbow river and subdivided portions of townships in southwestern Alberta.

Subdivision of lands through which the Alberta Coal branch of the Grand Trunk Pacific railway runs and surveys of coal claims in the same vicinity were made by Mr. A. L. McNaughton, D.L.S.

CORRECTION, RESTORATION AND MISCELLANEOUS SURVEYS.

Mr. A. L. Cumming, D.L.S., retraced two townships in the Cypress Hills in order to determine the true bearings of the lines and to renew the monuments, replacing the old wooden posts by iron posts. He also made several small miscellaneous surveys in southern Alberta.

Mr. P. B. Street, D.L.S., subdivided some lands in the foot-hills of the Rocky mountains in southwestern Alberta in order to enable the department to dispose of some coal lands and mineral claims near Pincher creek. He also made several miscellaneous surveys in this vicinity and traversed a portion of Icelandic river in eastern Manitoba.

A correction survey of several townships in central Alberta was done by Mr. H. Matheson, D.L.S. These townships were partly subdivided under contract in 1908, and owing to difficulties in securing supplies the contractor did not complete the subdivision. Although the contractor was requested to return and finish the work, it was never satisfactorily done and Mr. Matheson was instructed to com-

Mr. C. F. Aylsworth made a subdivision into lots of the land around Max lake in Turtle Mountain forest reserve and Fish lake in Moose Mountain forest reserve

for summer resort purposes.

Mr. C. Rinfret, D.L.S., destroyed duplicate monuments in a number of townships subdivided in 1883 in the vicinity of Moosejaw. He also resurveyed some townships near Maple Creek and towards the close of the season performed a number of miscellaneous scattered surveys.

Messrs. G. A. Bennett, D.L.S., E. S. Martindale, D.L.S., and R. C. Purser, D.L.S., were engaged on miscellaneous scattered resurveys, correction surveys, traverses and investigation of reported errors in Manitoba, Saskatchewan and Alberta.

Settlement surveys were made by Mr. H. S. Day, D.L.S., along the Athabaska

at Pelican, Grand Rapids, McMurray, McKay and Chipewyan.

Mr. P. A. Carson, D.L.S., made a stadia traverse of a portion of North Lillooet

Mr. A. W. Ashton, D.L.S., surveyed a cemetery site near Blairmore and also performed some miscellaneous surveys near Lytton.

An investigation of old surveys near Deloraine which was urgently required was made by Mr. T. S. Nash, D.L.S., of the office staff.

Messrs. W. T. Thompson, D.L.S., and H. K. Moberly, D.L.S., were employed on

the survey of timber berths.

The easterly portion of the triangulation survey in the railway belt was retraced by Mr. M. P. Bridgland, D.L.S. He renewed the monument at station I on the fifth meridian, erected by Mr. W. S. Drewry, D.L.S., in 1890, and reestablished all the stations westerly to the summit of the Rockies. He also connected the triangulation with the monuments of the Dominion Lands system, wherever possible, and, although he failed to locate the monuments on the sixth meridian, as they had been destroyed by fire and lumbering operations, he found the nearest existing monument two miles farther west and tied it to the triangulation. A thoroughly reliable tie has thus been established by means of the triangulation between the fifth and sixth meridians. Mr. Bridgland also investigated surveys west of Calgary.

Mr. J. N. Wallace, D.L.S., who is in charge of levelling operations ran lines northerly from Prince Albert and Lloydminster. This survey was necessary to connect the levels already taken along the third and fourth meridians and adjoining base lines with the elevations along the railway which are at present the only available source of information in the western provinces regarding sea-level. The line of levels run northerly from Prince Albert is thirty miles while that northerly from

Lloydminster is eighty-three miles.

YUKON SURVEYS.

Mr. F. H. Kitto, D.L.S., a member of the Topographical Surveys staff at Ottawa, was sent to Dawson to take charge of the survey office of the Yukon Territory upon the resignation of the former director.

Under the direction of the Commissioner of the Yukon Territory, Mr. Kitto undertook the reorganization of that office, in addition to the routine work which consists of giving information to the public, making blue-prints, tracings and sketches, mounting maps, writing descriptions, correspondence, examining and alling of plans and field notes.

At the request of the Commissioner, group lots and placer claims were surveyed by Mr. Kitto, and the revenue derived therefrom was transferred to the revenue of the Yukon Territory.

Alterations were made in the layout of the office and the lighting overhauled and improved.

In addition to the routine and reorganization work of the office, Mr. Kitto carried on a triangulation survey from Dawson up Klondike river about thirty miles. He also spent eighteen days in the field looking up various locations of trails, base lines and lot posts, for the information of the Territorial and Gold Offices.

Mr. H. G. Dickson, D.L.S., completed his survey under contract of the Carmack's reference traverse from the Nordenskiold valley to Jarvis creek in the Kluane District.

The staff of his office consists of three draughtsmen.

PHOTO-TOPOGRAPHIC SURVEYS.

Mr. Arthur O. Wheeler, who was formerly topographer on the surveys staff and is now director of the Alpine Club of Canada, made a photo-topographic survey of Mount Robson and the mountains of the continental divide north of the Yellowhead Pass on the Grand Trunk Pacific Railway. This survey was undertaken for the Grand Trunk Pacific Railway Co., the British Columbia and Alberta Governments and the Alpine Club. Mr. Wheeler offered to place the results of the survey at the disposal of the Department of the Interior provided the Department would assist by the loan of surveying instruments, by furnishing, developing and printing the photographic plates and by preparing the map for photo-lithography. The map, which contains much valuable information, obtained at a trifling cost, on a region hitherto unexplored, accompanies the report of the branch.

STATEMENT OF MILEAGE SURVEYED.

The following is a comparison of the mileage surveyed each year since 1909:—

Nature of Survey.	April 1, 1909, to March 31, 1910.	April 1, 1910, to March 31, 1911.	to
Township outlines. Section lines Traverse. Resurvey.	Miles. 2,089 16,326 2,413 3,876	Miles. 2,376 11,849 2,758 906	Miles. 2,041 10,098 2,577 2,317
Total for season Number of parties. Average miles per party.	60	17,889 64 279	17,033 61 280

The following tables show the mileage surveyed by the parties under daily pay and by the parties under contract:—

WORK OF PARTIES UNDER DAILY PAY.

Nature of Survey.	April 1, 1909,	April 1, 1910,	April 1, 1911,
	to	to	to
	March 31, 1910.	March 31, 1911.	March 31, 1912.
Township outlinesSection lines. Traverse. Resurvey.	Miles. 861 1,066 1,324 3,808	Miles. 1,178 1,487 462 835	" Miles. 992 823 498 2,237
Total for season Number of parties Average miles per party	7,059	3,962	4,550
	34	30	29
	208	132	197

WORK OF PARTIES UNDER CONTRACT.

Nature of Survey.	April 1, 1909,	April 1, 1910,	April 1, 1911,
	to	to	to
	March 31, 1910.	March 31, 1911.	March 31, 1912.
Township outlines. Section lines. Traverse Resurvey.	Miles. 1,228 15,260 1,089 68	Miles. 1,198 10,362 2,296 71	Miles. 1,049 9,275 2,079 80
Total for season	17,645	13,927	12,483
	26	34	32
	679	410	390

Owing to the nature of their work, fifteen parties are not included in the statement of mileage for the year ended March 31, 1912.

COST OF SURVEYS.

The following statement shows the average cost per mile of surveys executed by surveyors under daily pay and by surveyors under contract:—

	Surveyed under daily pay.	Surveyed under contract.
Total mileage surveyed. Total cost. Average cost per mile.	4,550 \$380,943 \$83.72	12,483 \$334,304 \$26.78

RECIPROCITY AMONG SURVEYORS.

As the outcome of a conference of surveyors held in Melbourne in 1892, the examination of land surveyors in New Zealand and in the several States of Australia is conducted by a common examining board and the surveyors who are admitted have the right to practise their profession in all parts of Australia and New Zealand.

In 1900, a formal invitation was received from the New Zealand Institute of Surveyors to join in this arrangement on behalf of Canada. Some correspondence was also exchanged with the Surveyor General of New Zealand on the same subject. It was explained to them that the surveyors of each Canadian province had formed associations which were incorporated by the provincial legislatures, and that there was no reciprocity among these different bodies. There was little prospect of joining Australia and New Zealand in reciprocal arrangements before such arrangements were made between the several Canadian associations.

At the Colonial conference of 1907, a motion was submitted by the Governor of New Zealand for establishing reciprocity among land surveyors throughout the empire. The motion was discussed and adopted after amendment. It states that it is desirable that reciprocity should be established and commends it to the favourable consideration of the several governments.

In order to be admitted as a Dominion Land Surveyor, it is necessary to pass a preliminary examination for admission as a pupil. After three years' service, the pupil is entitled to present himself for final examination for a commission as a Dominion Land Surveyor. At the time of the Colonial Conference (1907), the law authorized a land surveyor licensed in any part of the empire to present himself for final examination as a Dominion Land Surveyor after one year's service, without having to pass the preliminary examination.

In 1908, the Dominion Lands Surveys Act was passed by Parliament. Advantage was taken of the occasion to introduce an amendment with a view to giving effect to the desire expressed by the Colonial Conference if satisfactory arrangements could be made. The amendment authorized the Board of Examiners if they considered it advisable to do so, to dispense with the final examination of land surveyors from any particular part of the Empire. This amendment was strongly objected to in the Senate on behalf of the Ontario and Quebec land surveyors. Not only was the amendment withdrawn, but the whole section was struck out. Land surveyors from elsewhere than Canada have no longer any special privileges under the present law.

Representations against the new law were made by the Surveyors' Institution of Great Britain, who brought the matter to the attention of the Colonial Office. At their instance, His Majesty's Government invited the Dominion, Commonwealth, State and Provincial Governments to a conference of the Surveyors General of the Colonies, to be held in London on October 24, 1910. The invitation was accepted by the Dominion Government, but declined by all the Provincial Governments in Canada. It was also declined by Newfoundland and by the Union of South Africa. The Commonwealth of Australia, the Australian States and New Zealand asked a postponement of the date of the conference, which was accordingly fixed for the 30th May, 1911.

The delegates at the conference were:—Right Hon. Sir George Reid, P.C., G.C.M.G., K.C., High Commissioner for Australia, representing the Commonwealth; A. A. Spowers, Surveyor General of Queensland, and E. A. Counsel, Surveyor General of Tasmania, representing New Zealand and the Australian States, with the exception of South Australia; E. Deville, I.L.D., representing the Dominion of Canada; Col. S. C. N. Grant. C.B., C.M.G., R.E., Director General of the Ordnance Survey, A. Siemens, President, and five other members of the Institution of Civil 'Engineers; W. Edgar Horne, M.P., President, and five other members of the Surveyors' Institution.

The proceedings were opened by Lord Lucas, Under Secretary of State for the Colonies. Colonel Sir Duncan Johnston, K.C.M.G., C.B.R.E., late Director General of the Ordnance Survey, was elected chairman, and Mr. A. Goddard, secretary to the Surveyors' Institution, undertook the duties of secretary.

In order that the position of Canada should not be misunderstood, the Surveyor General of Dominion Lands at the first meeting submitted the following statement:—

When the Canadian Confederation was formed, in 1867, there were two Licensing Boards for Land Surveyors: one in Toronto, for the Province of Ontario, and one in Quebec, for the Province of Quebec. The requirements of the two boards were very much alike, viz., a preliminary examination, three years' service as a pupil under articles, and a final examination. By the British North America Act, property and civil rights had been placed under the control of the provinces: no one was allowed to make land surveys unless he was a Provincial Land Surveyor.

At that time, the Northwest Territories were bought by the Dominion Government from the Hudson's Bay Company. These lands being the property of the Dominion and outside of the provinces, were not under provincial control, but provincial land surveyors were at first employed for their subdivision because no others were available. In 1872, the need of better control over the surveyors of Dominion lands led to legislation creating Dominion Land Surveyors and a board of examiners for their admission. All Provincial Land Surveyors in 1872 were made Dominion Land Surveyors by the new Act. For some years there was reciprocity between the three boards, but as each one was acting independently, grave abuses arose, and the arrangement was discontinued.

Meanwhile, the Province of Manitoba had been formed out of a part of the Northwest Territories. The Ontario and Quebec Land Surveyors had each the exclusive right to make land surveys within their own provinces; likewise the Dominion Land Surveyors had similar rights within Manitoba and the Northwest Territories. The other provinces had no licensed surveyors and the practice of the profession was free.

After 1883, there was a period of dullness in the land business in Manitoba. In order to improve their prospects, the Dominion Land Surveyors of Manitoba formed an association, were incorporated by their legislature as Provincial Land Surveyors, and given the exclusive right to make land surveys within the province. This was later resented by the Dominion Land Surveyors of the adjoining Territories, who were turned away at the boundaries of Manitoba, while those Manitoba Land Surveyors, who were also Dominion Land Surveyors, could freely practise within the Territories. As soon as the Provinces of Saskatchewan and Alberta were formed, their Dominion Land Surveyors retaliated by obtaining drastic legislation incorporating land surveyors associations in each province and excluding all other surveyors. This legislation practically abolished Dominion Land Surveyors as a profession, these two provinces being the last ones where they could practise land surveying. At present, they can only act as employes of the Dominion Government. It follows that although the Surveyor General of Canada is a delegate to the Conference, he does not actually represent any branch of the surveying profession of Canada.

The first proposal of reciprocity was made to Canada at the time of the negotiations between New Zealand and Australia, by Mr. Marchand, then Surveyor General of New Zealand. The Surveyor General of Canada replied that personally he was in favour of the proposal, but it was not until 1908 that an opportunity was found of giving effect to this suggestion. In that year the law respecting Dominion Land Surveyors was recast, and an amendment was introduced authorizing the Board of Examiners to enter into reciprocal arrangements with other parts of the empire. This amendment was strongly objected to by the Ontario and Quebec surveyors: the opposition in Parliament was such that the government withdrew not only the proposed amendment but also a previously existing clause granting certain privileges to surveyors from other parts of the empire. In view of the strong objections of the Canadian

surveyors to any proposals of reciprocity, and of the fact that it does not even exist amongst themselves, it seems that there is little prospect of the immediate adoption by them of the wider scheme of reciprocity throughout the empire.

While recognizing the difficulties which stood in the way, the consensus of opinion among the delegates was that they had been called together for the purpose of preparing a scheme of reciprocity and that it was their duty to prepare such a scheme. The recommendations agreed upon contemplate uniform examinations, the syllabus of which was drafted by the Conference, similar terms of service everywhere and the creation of a central board to hear appeals against any of the local examining author-

ities. The Conference's report concludes as follows:

'The free discussion which has taken place at the Conference does not permit the delegates to overlook the difficulties which undoubtedly exist in the way of a general agreement for reciprocity; and although they are conscious that the scheme they have formulated will not provide a complete answer to every objection which can be raised, they venture to submit it as offering a groundwork for a future agreement among the dominions, provinces or states who desire to enter into reciprocal arrangements. Should any governments not find it practicable to accept in its entirety the scheme herein submitted, it may be that they will be able to adopt such parts of it as their circumstances permit. Even if a part only of the examinations for qualifying as surveyors should be accepted throughout the Empire, so that a candidate who had passed that part of the examination in any portion of the Empire would be excused having to undergo it again, in order to qualify as a surveyor in another portion of the Empire, a step forward would be made. In particular, the delegates wish to emphasize the importance they attach to the formation of the central board.'

CORRESPONDENCE.

The correspondence of this branch consisted of:

Letters receive	d	 	 	 	 	11,675
Letters sent		 	 	 	 	16,120

ACCOUNTS.

Number of accounts dealt with	 1,024
Amount of accounts	
Number of cheques forwarded	3.068

OFFICE STAFF.

The office staff of the Topographical Surveys Branch at Ottawa consists of one hundred and twenty-seven employes, being an increase of one over the staff of last year.

Fifteen appointments were made, one employe was superannuated, nine resigned,

while four were transferred to other branches of the Department.

The appointments were:—Messrs. W. B. Armstrong, J. E. Spero, L. A. Nevins, J. F. McDonald, A. S. Thomas, H. C. Smith, G. N. Clarke, A. G. McLennan, G. H. Watt, G. A. Colquhoun, J. J. Freeland, W. H. Herbert, H. Parry, R. C. Ross and L. G. Smith. Mr. P. B. Symes was superannuated, Messrs. J. E. Umbach, R. C. McCully, C. P. Dubuc, C. M. Ross, A. H. Beaubien, H. Osmond, C. M. Hoar, J. Fredette and B. J. Roe resigned, while Mr. J. A. Belleau was transferred to the Lands Patents Branch, Mr. A. M. Grant to the Chief Astronomer's Branch, Mr. A. Tremblay to the Railway Lands Branch, and Mr. C. E. Marchand to the Geographer's Branch.

Mr. Symes, chief draughtsman, who, on account of continued ill-health, was superannuated after more than forty years of service, was connected with the branch since its inception in 1873. He was a very valuable officer and had an intimate knowledge of the work, having materially assisted in the growth of the branch from a small office in the Department of the Secretary of State to its present large dimensions. His unfailing courtesy and patience in his relations with the staff made his retirement a matter of general regret. The position of chief draughtsman, rendered vacant by his superannuation, was filled by the promotion of Mr. T. Shanks, B.A. Sc., D.L.S., formerly assistant chief draughtsman. Mr. T. E. Brown, B.A., has been appointed to this latter position and the place formerly held by him, that of chief of the first section, was filled by the promotion of Mr. H. G. Barber.

CHIEF DRAUGHTSMAN'S OFFICE.

(T. Shanks, Chief Draughtsman.)

The progress of our work during the past year was seriously retarded by changes in the personnel and organization of the staff owing to transfers, resignations and absence from various causes.

There is possibly no other branch in the service which has suffered more than ours in the last few years from transfers and resignations. During the past year fourteen clerks left the office and the strength of the technical portion of the staff is no greater now than at the time of the reorganization in 1908, although the work has greatly increased. The activity in general engineering work throughout the Dominion has made it difficult to secure or retain properly qualified men and the salaries offered in this branch of the service are not sufficiently attractive to offset the advantages of a less restricted career outside where there are brighter prospects for more rapid promotion, greater variety of work and higher remuneration. The reorganization of 1908 and the consequent transfer of many temporary employes to the permanent staff has undoubtedly helped to make the tenure of office more continuous than before, but conditions are not likely to be satisfactory until provision is made for better salaries for technical men and improved facilities for more rapid promotion.

Attention has been repeatedly called to the serious handicap to efficient organization and the prompt despatch of business owing to the fact that our staff cannot be accommodated in one building or in offices convenient to the other branches of the Department. The nature of our work necessitates frequent reference to the records of old surveys and as these are stored in a separate building the work is subject to awkward interruptions and delays. Moreover, it frequently happens that many of the record books and plans are retained in our offices for long periods, and with no adequate protection from fire. These valuable records comprise a complete history of Dominion land surveys, and as their loss would be irreparable provision should be made as soon as possible for their safe keeping.

The average number of surveyors employed in the field each year for the past ten years has been sixty-four, about equally divided between contractors and day men. The present tendency is towards an increase in the number of day men, and a corresponding falling off in contract work. One chief cause of this is the fact that as the country becomes settled the amount of work affecting old surveys increases. Errors come to light, monuments disappear, topographical features change, modifications of the old surveys are rendered necessary and the resurveys which result are too complicated to be done under contract. This change brings with it an increase in office work, as instructions to surveyors must be prepared in greater detail than for regular township subdivision, the examination of survey returns is more laborious and the preparation of the more involved plans requires greater skill in draughtsmanship than

for the ordinary township plans, where much of the draughting and printing are done by mechanical means. The demand for original subdivision is still great, however, and it is estimated that about 180 townships will be surveyed under contract during 1912.

The primary object of our field work is to delimit the land for purposes of disposal and the plans of these surveys which are most urgently needed are those upon which entries may be granted and patents issued. But in addition to the work of marking out the boundaries of sections the surveyor collects much valuable information as to the character of the soil, the topography of the country, the extent of timber and prairie land and the natural resources of the district. An attempt has been made to compile this information in convenient form for reference but little progress has been made owing to the press of urgent routine work. Unless this information is up to date it loses much of its value and it is desirable that some arrangement shall be made to ensure early publication of data which, if one may judge from the inquiries received, are of great interest to the public.

FIRST SECTION—SURVEY INSTRUCTIONS AND GENERAL INFORMATION.

(H. G. Barber, Chief of Section.)

In this section instructions are prepared for surveyors engaged in field operations, and the returns of survey sent in by them are entered in the office registers. Preliminary plans are issued for all townships in which subdivision is done, except in the railway belt of British Columbia. This section also has charge of the preparation and issuing of the annual report of the Branch, and the answering of all requests for information from the general public or from other branches of the department.

During the year 161 drafts of instructions were issued involving the preparation of 1,905 sketches and 46 maps and tracings. These contained all necessary information regarding Dominion Lands, Indian reserves and other surveys already made in the vicinity, as well as all available information as to the nature of the country, roads, trails and methods of transportation.

Preliminary plans were issued for 285 townships. Four copies of each are prepared, one copy being placed on file in this office, and one each being furnished to the Survey Records Branch, the Lands Patents Branch and the land agent in whose district the township lies.

The number of files received from the Correspondence Branch for use in the work of the office was 1,800, and the total number of draft letters and memoranda written was 4.930.

The Manual of Instructions for the Survey of Dominion Lands was again revised. It is now almost ready for printing and will be issued in the course of the coming year.

During the year a report on the Peace River district was prepared and issued for the information of intending settlers. It gives a description of the soil, climate and main topographical features and of the various roads and trails leading into the country, with information about the stopping places, best means of transportation, etc. A map of the district accompanies the report.

Answering communications from settlers and others on various subjects and inquiries from other branches of the department forms an important part of the work. The number of communications dealt with during the year was 1,883, requiring the preparation of 3,599 sketches, 34 plans and tracings and 343 pages of field notes.

The office registers show that 1,142 progress sketches were received from the surveyors in the field, as well as 364 books of field notes for township surveys, 188 books and 330 plans for miscellaneous surveys, 235 timber reports, 86 statutory declarations of settlers and returns for 746 magnetic observations and for 29 timber berths. General reports on survey operations were received from thirty-eight surveyors.

SESSIONAL PAPER No. 25 '

Their examination being completed, 395 books of field notes of township surveys were placed on record together with 89 books and 137 plans of miscellaneous surveys and 86 statutory declarations of settlers.

Plans of 797 townships and 11 settlements or townsites were received from the lithographic office, entered in the registers and distributed, as well as 73 sectional maps and 106 miscellaneous plans.

The staff of this section consists of twenty-one permanent and three temporary employes, but of this number one is engaged the whole time in looking after the vault where numerous valuable records and sectional maps are kept, and the services of another employe are required to attend to requisitions for supplies for the whole Branch and the stationery for the office staff and the staff of the surveyors in the field.

SECOND SECTION—EXAMINATION OF RETURNS OF SURVEYS IN MANITOBA, SASKATCHEWAN, ALBERTA AND YUKON TERRITORY.

(T. S. Nash, Chief of Section.)

The work performed in the second section consists of the examination of the returns of survey of all Dominion lands other than those in the railway belt in British Columbia, and the preparation of the required plans thereof.

As soon as a surveyor completes the survey of a township, or a portion thereof, he forwards a sketch showing the progress of the work in the field. These sketches are examined to see that correct methods are being employed and that accurate results are being obtained. They also form the basis for advances to contractors on progress accounts.

During the year 335 progress sketches from contractors, 440 from men employed by the day and 196 from inspectors of contract surveys were examined, making a total of 971 sketches. Plans of 348 townships were compiled, 209 of which were first edition plans. The total number of township plans compiled is much smaller than in previous years, as the practice of compiling reprints of old surveys where the stock of township plans is exhausted, was discontinued.

An examination was made of 224 subdivision surveys and 186 miscellaneous surveys. Compiled plans of 16 miscellaneous surveys and 24 timber berths were made. Four hundred and nineteen memoranda on the examination of survey returns were sent to surveyors and 355 replies were received and the necessary corrections made. The number of draft letters prepared was 1.350. Twenty-six contract accounts were prepared and closed as the work was shown by the inspector's report to be satisfactorily performed.

In the report of last year it was stated that the question of issuing maps of the surveys in the Yukon Territory would be taken up this year. This has been done; a style of plan has finally been adopted and the first one, which covers the district in the immediate vicinity of Dawson, has been printed, while two others will be printed shortly. The new plan, which covers approximately sixteen miles in latitude and twenty miles in longitude is printed on a scale of one mile to the inch, and shows, in addition to surveys all available geographic information. A new filing cabinet for the Yukon work has been procured and a great number of plans have been thoroughly cross-indexed and filed for ready reference in compiling Yukon surveys. During the year 64 group lot surveys were examined. The remaining part of the Carmack's reference traverse and the returns of survey of the road from Yukon Crossing to Whitehorse were also received and examined.

Requests for information from other branches of the Department involved the writing of 220 memoranda, the preparation of 126 sketches and the calculation of 1,635 areas.

Two hundred and ninety-three plans of road diversions and 26 of timber berths were examined. The timber berths comprised 68 blocks and their boundaries totalled 569 miles, while the area is approximately 276 square miles. Twenty-four plans for these berths were prepared.

One hundred and eighty plans of right-of-way of railways were examined, the mileage of which is 3,114. As many of these plans were in duplicate and triplicate

the gross mileage of plans examined was 5,892.

A large amount of work has been put upon the preparation of a topographical map of the valley of Fiddle creek, a tributary of Athabaska river in the Jasper Forest Park reserve, and in assisting the surveyor to complete his final returns of this survey.

The staff consists of twenty-six permanent and two temporary employes, but one of the permanent clerks is at present in charge of the office at Dawson, Yukon

Territory.

THIRD SECTION-PREPARATION OF PLANS FOR REPRODUCTION.

(C. Engler, Chief of Section.)

The work of the third section consists in the preparation of copies of plans (which have been compiled in the second, fourth and sixth sections) for reproduction by photo-zincography or photo-lithography.

The appearance and accuracy of the printed copies of the various plans which are issued depend largely on the care given to the production of the fair or finished

copies prepared in this section.

The efforts of both draughtsmen and stampers are directed to producing plans on which the information is shown accurately to scale, well arranged and of clean and neat appearance.

The various processes used in preparing fair copy plans have been described in

previous reports.

The bulk of the work done in this section has necessarily been in connection with the issuing of township plans. Other plans prepared have been required for showing timber berths, orders in council, settlements or townsites, Yukon Territory group lots, Doukhobor villages and plans for the annual report.

Besides these, there are a number of plans and jobs forming a miscellaneous class in connection with the requirements of the branch, difficult to classify, but form-

ing an important factor in work of the section.

A statement showing the classification and number of jobs undertaken and completed is given in the report of the Chief Draughtsman.

The staff numbers thirteen, three previous members having been transferred to

other Departments or offices, and two appointments having been made.

In addition, the services of an assistant printer are constantly required and three temporary employes were appointed, one of whom has lately been transferred to another department.

FOURTH SECTION—SURVEYS IN THE RAILWAY BELT, BRITISH COLUMBIA.

(E. L. Rowan-Legg, Chief of Section.)

Instructions were prepared for surveys to be made in the railway belt and were accompanied by sketches and any other information which it was considered would be of assistance to the surveyors.

The greater part of the subdivision surveys which had to be shown on the township plans compiled during the year were those in which monuments were erected, as far as practicable, at legal subdivision corners and in the centre of legal subdivision

boundaries along the surveyed lines, so that the lands might be disposed of in parcels of such sizes as may be desired.

On account, therefore, of the additional information required to be shown in connection with these surveys, quarter township plans were made on a scale of twenty chains to one inch. On these are shown the position and nature of all monuments, the distances between them, the bearings of the section or quarter section boundaries, the area of each legal subdivision or quarter section where monuments were placed at quarter section corners only, the section and legal subdivision numbers and provincial lots, Indian reserves, mineral claims, lakes, rivers, creeks and trails.

Field notes of the surveys of mineral claims, of miscellaneous surveys and of timber berths were examined. Plans of timber berths were made, and fair copies of them were forwarded to the Timber Branch.

A plan of the townsite of Field, in section 17, township 28, range 18, west of the fifth meridian, was compiled and printed, and also a second edition of the plan of the town of Lytton in section 6, township 15, range 26 and section 1, township 15, range 27, west of the sixth meridian.

In 1909, Mr. A. W. Johnson made a subdivision survey of villa lots at Woodhaven, in sections 23, 24 and 25, fractional township west of township 39, west of the coast meridian on Bedwell Bay, north arm of Burrard Inlet, a plan of which was compiled and printed.

This year a plan showing the block outlines of a proposed additional subdivision at Woodhaven was made for the guidance of the surveyor when the survey is being made.

The staff consists of seven permanent clerks, which is two fewer than the staff of the previous year.

FIFTH SECTION-MAPPING

(J. Smith, Chief of Section.)

The principal work of this section is the revision of sectional maps that have already been printed, and the completion of new sheets as they are required. Appendix No. 6 of this report shows the work done in this section during the year on sectional maps.

In addition to these maps, the following drawings were made:—A manuscript chart of the magnetic declination covering the southern part of Canada and the northern part of the United States, drawn on two sheets on a scale of one hundred miles to one inch to be photo-engraved on copper and printed on a scale of three hundred miles to one inch; a map of the Peace River district and one of the Peace River block on a scale of four miles to one inch; a map showing the topography along the fifteenth base line in the vicinity of the second meridian, drawn on a scale of four miles to one inch, to be photo-zincographed on a scale of six miles to one inch; a tracing of part of the Selkirk range on a scale of 100,000, to be photo-lithographed on a scale of 150,000.

Thirteen permanent employes constitute the staff of this section.

SIXTH SECTION-SCIENTIFIC AND TOPOGRAPHICAL WORK.

(G. Blanchard Dodge, Chief of Section.)

The work performed in general in this section consists of issuing instructions for and plotting returns of levels on meridians and base lines, checking and reducing magnetic observations, calculating astronomical field tables, testing and adjusting survey instruments, and preparing and issuing the pamphlets containing surveyors' township reports, &c.

The standard of accuracy of the levels on meridians and base lines was raised for 1911, and the difference of elevation between adjacent bench marks was required to be checked by a second independent line, the two lines to check between adjacent bench marks within 0·1 feet multiplied by the square root of the distance in miles.

All the level notes for 1910 have been checked, lists of bench marks prepared and profiles plotted. During the year 1,427 miles of level returns were received while 1,502 miles had been received previously. Level returns were examined and profiles plotted of 1,660 miles. All the lines on which levels have been run prior to March 31, 1912, are shown on a map which accompanies the report of the branch.

The number of magnetic declination returns received prior to March 31, 1911, was 2,841, of which 746 were received during the year. A statement of the results with a map showing the isogonic lines in that portion of western Canada covered by the Dominion Lands system of survey is published with the report of the branch in monograph form.

The office computations of triangulation surveys in the railway belt, British Columbia, have been brought up to date, but further information is necessary before much use can be made of the present results. It is hoped that the returns for next

season's surveys will supply this information.

All the returns of azimuth observations for the year 1910, received during 1911, have been examined and checked, and also the latitude observations of Mr. J. A. Fletcher, D.L.S., taken during 1911. The astronomical field tables for the year have been computed.

Compiling surveyors' reports on the townships subdivided requires the services of four of the staff. A report on the townships covered by the Fort Pitt sectional sheet

has been compiled and sent to the printers for publication.

Information was obtained for a map to accompany the report of 'Descriptions of surveyed townships in the Peace River district,' and a rough copy of the map was made with the information added.

SURVEYS LABORATORY.

A surveys laboratory for testing instruments has lately been built, and it has already proved very useful. Although only a portion of the equipment has been installed, facilities will be provided for testing and adjusting surveying transits, levels, aneroid barometers, measuring tapes, etc., and for rating chronometers and watches.

The number of letters received during the year was 446 while the number of letters sent was 1,130 besides 498 memoranda. Seventy-nine letters of instructions to surveyors were prepared.

The staff of the section consists of fourteen permanent clerks and two temporary clerks.

PHOTOGRAPHIC OFFICE.

(J. Woodruff, Chief Photographer.)

The offices of the Chief Photographer have been moved to the rooms in the basement formerly occupied by the lithographic office. The rooms have been fitted with the necessary appliances and afford every facility for the work.

There has not been much change in the amount of work executed. Velox and blue printing have increased but other lines have decreased.

The staff of four assistants is the same as last year.

PHOTOGRAPHIC OFFICE.

(H. K. Carruthers, Process Photographer.)

With the removal of the Chief Photographer's offices to the basement, it has been possible to give increased accommodation to the process photographer.

The four dark rooms were made into two rooms, thus providing ample space for

handling large zinc plates and glass negatives.

Sectional maps on the three miles scale which before required two 18-in. x 20-in. negatives are now made on one 24-in. x 32-in. plate and printed direct on zinc for the press.

Three township plans are printed at one operation on zinc 32-in. x 49-in. and sent

direct to the lithographic office ready for the press.

A new automatic mercury vapour lamp was installed. Five tubes are used in connection with a pneumatic printing frame 36-in. x 60-in., an automatic electric pump maintaining the vacuum.

A full set of machines for line and half-tone engraving was set up in the basement of the Imperial Building. Twenty-one half-tone engravings were made to illustrate the Peace river report and almost a full set of line cuts for the Manual of Survey.

The staff was increased by the appointment of Mr. Leonard G. Smith as assistant process photographer, and now consists of four men. Mr. Smith has attended for six years the London County Council School of Photography, Engraving and Lithographing, and was six years on the staff of the Geographical Section of the War Office. He has proved a valuable addition to our staff.

In order to answer numerous enquiries concerning our copying camera, a description of the camera has been published in pamphlet form. It is annexed to this report as Appendix No. 11.

LITHOGRAPHIC OFFICE.

(A. Moody, Foreman.)

The lithographic office has been moved to the Imperial Building on Queen street where it occupies the whole of the basement. This place was probably the best available in town: it affords splendid accommodation and no better quarters could be had unless a building was erected for that special purpose. The only disadvantage is that the place is a little damp in summer; it causes some trouble in registering coloured impressions.

A power paper-cutter was added to the equipment which now consists of a flat-bed power-press, a rotary offset power-press, three hand-presses for transferring, a zinc-plate graining machine and a power paper-cutter.

The work is for the greater part photo-zincographic printing. A few maps are printed on stones; others are engraved and transferred.

The staff of ten employes is the same as last year.

GEOGRAPHIC BOARD.

(A. H. Whitcher, Secretary.)

The Geographic Board has held a number of meetings and gave decisions on the geographic names submitted. The Chairman is Col. W. P. Anderson, Chief Engineer of Marine and Fisheries, and the report of the board is published by his Department.

The Secretary is a member of the staff of this office.

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BOARD OF EXAMINERS FOR DOMINION LAND SURVEYORS.

(F. D. Henderson, Secretary.)

The Board of Examiners for Dominion Land Surveyors held a special meeting for the examination of candidates from April 29, 1911, to May 18, 1911, during which examinations were held at Ottawa, Toronto, Regina and Vancouver. An adjourned meeting for the preparation of examination papers was held from October 2 to October 12, 1911. The regular annual meeting began on February 12, 1912, and lasted until March 23, 1912. During this meeting examinations were held at Ottawa, Montreal, Kingston, Toronto, Winnipeg, Calgary and Edmonton.

The total number of candidates for examination during the year was 268, as against 257 in 1910-11, and 362 in 1909-10. Of these 186 tried the full preliminary, 9 the limited preliminary, 71 the final, and 2 the examination for Dominion Topo-

graphical Surveyor.

Fifty-seven candidates were successful at the preliminary examination as follows:—

PRELIMINARY EXAMINATION.

Atkins, Cecil Ben., Revelstoke, B.C.
Bedard, Edward L., Courtright, Ont.
Britton, George Clayton, Whitby, Ont.
Burland, George Lewis, Ottawa, Ont.
Burrell, Eric, Yarmouth North, N.S.
Byron, Malcolm Ross, Ottawa, Ont.
Cameron, Charles Scott, Regina, Sask.
Campbell, John James, Galt, Ont.
Carlie, Reginald Clifford, Calgary, Alta.
Carty, Edward Godfrey, Ottawa, Ont.
Cavell, Edward, Toronto, Ont.
Clarke, Roger Fyfe, Hamilton, Ont.
Clouston, Noel Stewart, Winnipeg, Man.
Coursier, Eric Clarence, Revelstoke, B.C.
de Noblens, Gerard, Aldersyde, Alta.
Duffield, Hugh J., Calgary, Alta.
Ells, Sidney C., Ottawa, Ont.
Falconer, Fairbairn S., Shelburne, Ont.
Finnie, Oswald Stirling, Ottawa, Ont.
Fraser, Jonathan William, Ottawa, Ont.
Gardner, James David, Ottawa, Ont.
Grange, Edward Rochfort, Toronto, Ont.
Hardouin, Joseph, Calgary, Alta.
Heinonen, Henry J., Toronto, Ont.
Jordan, Edward Elliot, Ottawa, Ont.
King, John Albert Shirley, Ottawa, Ont.
Le Blanc, Pierre Maxime Henri, Ottawa, Ont.

Lowrie, Arthur Wellington Percy, Russell, Ont. Malcolm, William Noel, Winnipeg, Man. Miller, Albert Sherman, Brighton, Ont. Milliken, John Bolton, Ottawa, Ont. Moran, Patrick Joseph, Kingston, Ont. Murdie, William Campbell, Winthrop, Ont. MucTavish, William Higgins, Van Camp, Ont. McCaw, Donald Arthur, Welland, Ont. McDonald, Roderick C., Ripley, Ont. McFaul, W. Lawrence, Owen Sound, Ont. Nesham, Lionel Charles, Ottawa, Ont. Nicklin, Harold Raymond, Millbank, Ont. Noecker, Claude, Waterloo, Ont. Oke, William Verner, Toronto, Ont. Platt, Errol Beauchamp, Toronto, Ont. Rhys, Howard Leonard, Ottawa, Ont. Robertson, John Donald, Edmonton, Alta. Ross, Othmar Wallace, Brantford, Ont. Spence, William A., Ottawa, Ont. Spence, William A., Ottawa, Ont. Spence, William A., Ottawa, Ont. Stidwill, Frank, Cornwall, Ont. Tye, Howard Warner, Stratford, Ont. von Gunten, Carl Frederick, Blenheim, Ont. Walker, George Stuart, Renfrew, Ont. Watson, Angus Robert, Beaverton, Ont. Wrong, Frederick Hay, Windsor, Ont. Young, Stewart, Owen Sound, Ont.

Forty-eight candidates were successful at the final examination as follows:-

FINAL EXAMINATION.

Berry, Edward Wilson, Seaforth, Ont.
Boulton, William James, Wallaceburg, Ont.
Brown, Edgar Carl, Regina, Sask.
Burd, James Henry, Weyburn, Sask.
Cline, Carl Gordon, Toronto, Ont.
Cond, Fritz Thomas Piercy, Vancouver, B.C.
Cote, J. Aurele, Ottawa, Ont.
Dann, Evre Morton, Kamloops, B.C.
Dennis, Thomas Clinton, Ottawa, Ont.
Earle, Wallace Sinclair, Victoria, B.C.
Fawcett, Sidney Dawson, Ottawa, Ont.
Fletcher, James Allan, Fletcher, Ont.
Fraser, Donald John, Ottawa, Ont.

Matheson, Hugh, Ottawa, Ont.
Melhnish, Paul, Vancouver, B.C.
Menzies, John Whyte, Ottawa, Ont.
MacKay, Ernest George, Hamilton, Ont.
MacLeod, George Waters, Edmonton, Alta.
McColl, Samuel Ebenezer, Winnipeg, Man.
McEwen, Duncan Findlay, Edmonton, Alta.
Narraway, Athos Maxwell, Ottawa, Ont.
Neelands, Rupert A., Hamiota, Man.
Neville, Everett A., Ruthven, Ont.
Palmer, Philip Ebenezer, Dorchester, N.B.
Peckover, Horace Joseph, Toronto, Ont.
Robinson, William Andrew, Winnipeg, Man.

Galletly, James Simpson, Brooklin, Ont.
Greene, Gerald Elliot Denbigh, Toronto, Ont.
Haggen, Rupert Williams, Revelstoke, B.C.
Stitt, Ormond Montgomery, Vancouver, Hamilton, Charles Thomas, Vancouver, B.C. Higgins, Connell J., Vancouver, B.C. Hobbs, Wilfrid Ernest, Winnipeg, Man. Hunter, A. Ernest, Wiarton, Ont. Inkster, Oluff, Edwin Oxford Control Ont. Jackson, John Edwin, Oxford Centre, Ont. Jones, George Samuel, Ottawa, Ont. Lindsay, James Herbert, Regina, Sask. Loucks, Roy William Egbert, Saskatoon, Sask.

Stewart, Norman Charles, Nelson, B.C. Stitt, Ormond Montgomery, Vancouver, B.C. Stuart, Alexander Graham, Buckingham, Que. Taggart, Charles Henry, Ottawa, Ont. Tate, Harry William, Toronto, Ont. Tipper, George Adrian, Brantford, Ont. Tremblay, Albert Jacques, Edmonton, Alta. Underwood, Joseph Edwin, Saskatoon, Sask. Whyte, Harold Eustace, Victoria, B.C. Wright, Alfred Esten, Prince Rupert, B.C.

As in former years, the time of the Board was largely taken up with the reading and valuation of the candidates' answers and with the preparation of sets of questions for the several examinations. The evidence as to the standing of final candidates, consisting of Provincial certificates in the case of Provincial Surveyors writing under section 21 of the Act, and of affidavits of service under articles in the case of others, had to be examined and passed upon.

The privilege of serving one year under articles instead of three years, as provided by Section 22 of the Act, was extended to graduates of the University of Liverpool holding the Degree of Bachelor of Engineering with Honours, and to graduates of the University of Dublin holding the Degree of B.A.I.

The forms of articles and of the transfer of articles (given in the Schedule of the Act as Forms B and D) are considered by the Board as unnecessarily long and involved. Considerable discussion took place with a view to preparing forms which would be shorter and easier to fill out.

When there are many candidates and when the examinations are held at places distant from Ottawa, it frequently happens that the results of the examinations are not known for a month or more after the candidates have finished writing. Thus the three weeks of grace allowed by the Rules of the Board is not enough to permit candidates who have passed the preliminary examination to come up for final examination one year or three years after as seems the intention of the Act. The Rules of the Board were, therefore, changed in this respect so as to allow any person who passes the preliminary examination and who becomes articled immediately on receiving notice thereof to write on the final examination in one year or in three years, as the case may be.

Oaths of office and allegiance and bonds for the sum of one thousand dollars each, as required by Section 25 of the Act, were received from and commissions as Dominion Land Surveyors were issued to, fifty-one surveyors.

Subsidiary standards of length as required by Section 35 of the Act, were tested and issued to thirty-seven surveyors. One standard which had changed hands was retested. A list of surveyors who have been furnished with standard measures up to March 31, 1912, will be found in Appendix No. 10.

The correspondence of the Board was as follows:—

Letters received	
Letters sent	880
Circular letters, pamphlets, and parce	els sent 1.517

APPENDICES.

The following schedules and statements are appended:

No. 1. Schedule of surveyors employed and work executed by them from April 1, 1911, to March 31, 1912.

No. 2. Schedule showing for each surveyor employed from April 1, 1911, to March 31, 1912, the number of miles surveyed of township section lines, township outlines, traverses of lakes and rivers and resurvey; also the cost of the same.

No. 3. List of lots in the Yukon Territory, surveys of which have been received from April 1, 1911, to March 31, 1912.

No. 4. List of miscellaneous surveys in the Yukon Territory, returns of which

have been received from April 1, 1911, to March 31, 1912.

No. 5. Statement of work executed in the office of the chief draughtsman.

No. 6. List of new editions of sectional maps issued from April 1, 1911, to March 31, 1912.

No. 7. Statement of work executed in the photographic office from April 1, 1911.

to March 31, 1912.

No. 8. Statement of work executed in the lithographic office from April 1, 1911. to March 31, 1912.

No. 9. List of Employes of the Topographical Surveys Branch at Ottawa, giving

the name, classification, duties of office and salary of each.

No. 10. List of Dominion Land Surveyors who have been supplied with standard measures.

No. 11. The copying camera.

No. 12. Results of observations for magnetic declination.

Nos. 13 to 51. Reports of surveyors employed.

Note.—Appendices Nos. 11 to 51 appear in the report of the Topographical Surveys Branch in monograph form.

MAPS AND PROFILES.

The following maps and profiles accompany the report of the Topographical Surveys Branch in monograph form:—

Map showing surveys to March 31, 1912. Map of Mt. Robson and vicinity.

Maps to accompany reports of surveyors.

Profiles of meridians and base lines.

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

> E. DEVILLE, Surveyor General.

TOPOGRAPHICAL SURVEYS BRANCH

SCHEDULES AND STATEMENTS

APPENDIX No. 1.

Schedule of Surveyors employed and work executed by them from April 1, 1911, to March 31, 1912.

Surveyor.	Address.	Description of Work.
Akins, J. R	Ottawa, Ont	Survey of the north boundary of the Peace River block, production of the twenty-third base line across ranges 10, 11 and 12, and parts of ranges 9 and 13; survey of the east outlines of townships 85, 86, 87 and 88, range 13, west of the sixth meridian.
Allison, C. B	South Woodslee, Ont.	. Ontract No. 4 of 1911. Subdivision of town- ships 36 and 37, range 20, townships 34, 35 and 36, range 21, the southerly two-thirds of township 38, range 20, and the northerly third of township 33, range 21, west of the principal meridian.
Ashton, A. W	Ottawa, Ont	. Survey of Blairmore cemetery in township 8, range 4, west of the fifth meridian. Miscellaneous surveys in townships 20 and 21, range 24, and at Lytton in township 15, range 27, west of the sixth meridian.
Aylen, J	North Bay, Ont	Contract No. 7 of 1911. Subdivision of town- ship 46 and the north third of township 45, range 9, townships 46, 47; the north third of township 45 and the south two-thirds of township 48, range 10; survey of the north and south outlines of township 47, range 9,
Aylsworth, C. F	Madoc, Ont	west of the second meridian. Retracement in townships 13, 14 and 15, range 6, east of the principal meridian; survey of lots in Turtle Mountain and Moose Mountain forest reserves.
Baker, J. C	Xingston, Out	Contract No. 15 of 1911. Subdivision of town- ships 56, 57, 58, 59 and 60, range 17, and township 57, range 18, west of the third meridian.
Belanger, P. R. A	Ottawa, Ont	Inspection of contracts Nos 2 and 3 of 1910. Contracts Nos. 3, 8 and part of contract No. 5 of 1911. Settlement survey at Fisher Bay in township 29, range 2, east of the principal meridian. Subdivision of parts of township 16, range 16, and townships 15 and 16, range 17, east of the principal meridian. Resurvey in township 33, range 8, and townships 31 and 32, range 9, west of the prin-
Bennett, G. A I	Eden, Ont	cipal meridian. Subdivision in townships 13 and 14, range 29, west of the second meridian. Retracement in townships 9 and 10, ranges 10 and 11, townships 7 and 8, range 15, township 8, range 16, township 20, range 17, and townships 10 and 11, range 19, west of the second

APPENDIX No. 1-Continued.

Schedule of Surveyors employed and work executed by them from April 1, 1911, to March 31, 1912—Continued.

Surveyor.	Address.	Description of Work.
		meridian; township 13, range 4, township 25, range 6, townships 13 and 16, range 14, township 19, range 15, and township 26, range 20, west of the third meridian; township 21, range 1, townships 10 and 11, range 5, townships 10, ranges 6 and 10, and township 8, range 21, west of the fourth meridian. Resurvey in township 16, range 13, townships 27 and 28, ranges 14 and 15, township 26, range 23, and township 33, range 26, west of the third meridian; townships 16,
		ranges 3 and 4, townships 14 and 15, range 10, township 19, range 21, and township 18, range 26, west of the fourth meridian. Investigation in township 15, range 3, and townships 11 and 15, range 4, west of the fourth meridian. Traverse in township 25, range 5, west of the third meridian; townships 14, ranges 21 and 22, and townships 36, ranges 24 and 25, west of the fourth meridian.
		Survey of the twenty-third base line between the fourth and fifth meridians. Survey of the western boundary of the Peace River block from the twenty-first base line
Bridgland, M. P	Calgary, Alta	to the north-west corner of the block. Triangulation survey in the railway belt, British Columbia. Survey of villa lots at Banff. Investigation in township 27, range 1, and township 24, range 8, west of the fifth
		meridian. Stadia traverse of North Lillooet river in township 12, east of the coast meridian. Contract No. 23 of 1911. Subdivision of township 49, range 12, townships 49, 50 and 51,
Chase, A. V	Orillia, Ont	range 13, and townships 50 and 51, range 14, west of the fifth meridian. Examination of lands in the Kamloops distract of the railway belt, British Columbia, for the purpose of classification into fruit land, farming land, grazing land, timber land and worthless land. Subdivision in
		township 14, range 23, township 15, range 26, and townships 14 and 15, range 27, west of the sixth meridian. Traverse in township 15, range 26, and townships 13, 14 and 15,
Christie, Wm	Prince Albert, Sask.	range 21, west of the sixth meridian. Contract No. 11 of 1911. Subdivision of townships 53, 54 and 55, range 8, townships 51, 52 and 53, range 9, and survey of the east outline of township 56, range 9, west of the
Cote, J. L	Edmonton, Alta	third meridian Contract No. 21 of 1911. Subdivision of town-ships 45, 46 and 47, range 7, township 48, range 8, and townships 48 and 49, range 9, west of the fifth meridian. Contour survey of the townsite of Fitzhugh, in township 45,
Cumming, A. L	Cornwall, Ont	A range 1, west of the sixth meridian. Retracement surveys in townships 7, ranges 23 and 24, west of the third meridian; township 44, range 4, township 48, range 10, townships 48 and 49, range 11, townships 50, ranges 13 and 14, and townships 44 and 45,

APPENDIX No. 1-Continued.

Surveyor.	Address.	Description of Work.
-		range 15, west of the fourth meridian. Subdivision of parts of township 19, range 7, and township 20, range 8; survey of part of the east outline of township 20, range 7, west of the fifth meridian. Traverse in townships 44 and 45, range 15, west of the fourth meridian, and townships 19 and 20, were to the fifth meridian.
Davies, T. A	Edmonton, Alta	range 7, west of the fifth meridian. Contract No. 19 of 1911. Subdivision of townships 67, 68 and the north third of 66, ranges 10, 11 and 12, west of the fourth meridian. Retracement of lots in Lac la Biche settlement in township 67, range 12, west of the fourth meridian.
Day, H. S	St. John, N.B	Settlement surveys at Pelican, Grand Rapids, McMurray, McKay and Chipewyan, on Athabaska river. Traverse of part of Atha-
Deans, W. J	Brandon, Man	baska river near McKay. Subdivision in township 8, range 26, and townships 2, 3 and 4, range 29, west of the sixth meridian; townships 2 and 38, west of the coast meridian; and townships 14, 17, 18, 19, 20, 22 and 25, east of the coast meridian. Resurvey in townships 2 and 3, range 29, west of the sixth meridian; townships 2 and 38, west of the coast meridian; and townships 17, 18, 19, 20, 22 and 23, east of the coast meridian. Traverse in township 8, range 26, and township 2, range 29, west of the sixth meridian, and townships 20, 22 and 25, east of the coast meridian. Survey of timber berth No. 544, in township 2, west of the coast meridian and berth No.
Fairchild, C. C	Brantford, Ont.,	553, in townships 17 and 18, east of the coast meridian. Contract No. 27 of 1911. Subdivision of townships 57, ranges 14, 15, 16 and 17, and townships 57, ranges 14, 15, 16 and 17, and townships 57, ranges 14, 15, 16 and 17, and townships 57, ranges 14, 15, 16 and 17, and townships 57, ranges 14, 15, 16 and 17, and townships 57, ranges 14, 15, 16 and 17, and townships 57, ranges 14, 15, 16 and 17, and 18, east of the coast meridian.
Fletcher, J. A	Ottawa, Ont	ship 56, range 18, west of the fifth meridian. Latitude observations along the principal meridian in townships 35 and 48, and along
Fontaine, L. E	Levis, Que	the fourth meridian in townships 62 and 89. Inspection of contracts Nos. 15, 29, 30 and 31 of 1910, and contracts Nos. 21, 22, 23, 24, 27 and parts of Nos. 20 and 28 of 1911. Reinspection of contracts Nos. 22 and 23 of 1909. Correction survey in township 47, range 5, and townships 48 and 49, range 6, west of the fifth meridian. Survey of part of timber berth No. 1727, in townships 48 and 49, range 6, west of the fifth meridian.
Francis, J	Portage la Prairie, M	fifth meridian. Subdivision of parts of townships 43 and 44, range 20, townships 45 and 46, range 23, and township 46, range 24, west of the fifth meridian
Gibbon, Jas	. Vancouver, B.C	dian. Contract No. 2 of 1911. Subdivision of town- ships 28 and 29, ranges 7 and 8, and town- ship 29, range 9, west of the principal meri- dian.
Green, T. D	.Ottawa, Ont	dian. Contract No. 20 of 1911. Subdivision of townships 41, 42, 43 and 44, range 7, township 41, range 8, and township 39, range 9, west of the fifth meridian.

APPENDIX No. 1-Continued.

Surveyor.	Address.	Description of Work.
Hawkins, A. H	.Listowel, Ont	Survey of timber berth No. 1788 in townships 40 and 41, range 9, west of the fifth meridian. Survey of the twenty-second base line across ranges 1 to 20, west of the fifth meridian. Contract No. 26 of 1911. Subdivision of townships 49 and 50, range 20, and township 50,
		range 21, part of township 49, range 21, and the south thirds of townships 51, ranges 19, 20 and 21, west of the fifth meridian. Subdivision in township 48, range 26, and townships 48 and 49, range 27, west of the fifth meridian. Correction surveys in townships 51 and 52, range 24, west of the fifth
Holcroft, H. S	.Toronto, Ont	ships 51 and 52, range 24, west of the fifth meridian. Contour survey of the land adjoining the Fiddle Creek hot springs in Jasper Forest Park reserve in Western Alberta. Contract No. 29 of 1911. Subdivision of township 73, range 16, townships 73, 76 and portions of 74 and 75, range 17, townships 74, 75 and 76, range 18 and part of township 76, range 19, and survey of the east outline of
Hubbell, E. W	. Ottawa, Ont	township 73, range 19, west of the fifth meridian. Inspection of contracts Nos. 9, 10, 12, 13, 15 and 16 of 1911; partial inspection of contracts No. 6 of 1910 and No. 11 of 1911. Part subdivision of township 52, range 16, west of the third meridian. Resurvey in townships 45, ranges 27 and 28, west of the second meri-
Inkster, O	.Edmonton, Alta	dian, and townships 45 and 46, range 5, west of the third meridian. Traverse in township 52, range 17, west of the third meridian. Contract No. 28 of 1911. Subdivision of townships 56, ranges 19, 20 and 21, townships 55, 56 and the north third of 54, range 22, and
Kimpe, M	. Edmonton, Alta	ships 48 and 49, range 10, townships 48, 49, 50 and 51, range 11, and townships 48, 50 and 51, range 12, west of the fifth meridian. Survey of timber berth No. 1749 in townships
Laurie, R. C	.Battleford, Sask	42 and 43, ranges 13 and 14, west of the fifth meridian. Contract No. 13 of 1911. Subdivision of townships 50, 51 and 52, range 11, and townships 52, ranges 12 and 13, west of the third meri-
Lighthall, A	. Vancouver, B.C	dian. Subdivision in township 7, range 29, west of the sixth meridian; township 6, range 4, and townships 4, 5, 6 and 7, range 5, west of the seventh meridian; townships 40 and 41, east
		of the coast meridian. Resurvey in township 7, range 29, west of the sixth meridian; townships 4 and 6, range 5, west of the seventh meridian; townships 15, 40 and 41, east of the coast meridian. Traverse in township 7, range 29, west of the sixth meridian township 6, range 4, and townships 4, 5 and 6, range 5, west of the seventh meridian; townships 15, 40 and 41, east of the coast meridian.

APPENDIX No. 1-Continued.

Surveyor.	Address.	Description of Work.
		Levelling along the street lines at Woodhaven on Bedwell Bay, British Columbia. Survey of timber berth No. 547 in township 7, rauge 29, west of the sixth meridian; timber berths Nos. 546, 548 and 549, in township 6, ranges 4 and 5, west of the seventh meridian.
Lonergan, G. J	Buckingham, Que	of 1910, and contracts Nos. 27, 28, 32 and 33 of 1910, and contracts Nos. 29, 30, 31 and 32 of 1911. Miscellaneous resurveys in townships 50, 51 and 53, range 27, and townships 50, 51, 53 and 54, range 28, west of the fourth meridian. Correction survey at St. Albert settlement.
McFarlane, J. B	.Toronto, Ont	Production of the fourth meridian from the north-east corner of section 13, township 95 to the north-east corner of township 105. Survey of the twenty-fourth base line across ranges 1, 2, 3 and 4, west of the fourth meri- dian.
		·· Contract No. 32 of 1911. Subdivision of town- ships 77, 78, 79 and 80, ranges 13, 14 and 15,
McGrandle, H	.Wetaskiwin, Alta	west of the sixth meridian. Contract No. 25 of 1911. Subdivision of town ship 51, range 17 and townships 49, 50 and the south third of 51, range 18, west of the
MacLennan, A. L	.Toronto, Ont	fifth meridian. Subdivision of townships 56, ranges 25 and 26 and part subdivision of township 57, range 26 and township 56, range 27, west of the principal meridian. Mounding along the fifteenth base line in ranges 25 and 26, west of the principal meridian. Traverse ir townships 56, ranges 24, 25 and 26, west of the principal meridian. Survey of booming site on Carrot river, ir townships 56, ranges 26 and 27, west of the
McMillan, Geo	.Ottawa, Ont	principal meridian. Production of the twenty-first base line across ranges 13 to 26, west of the sixth meridian. Survey of the west boundary of the Peace river block from the twenty-first base line
McNaughton, A. L	.Cornwall, Ont	to the south-west corner of the block. Part subdivision of townships 46, ranges 18 and 19, townships 47 and 48, range 20, and township 48, range 21, west of the fifth meridian Survey of the east outline of township 45.
Martindale, E. S	.Kingsmill, Ont	range 20, west of the fifth meridian. Part subdivision of township 17, ranges 4 and 5, townships 17 and 18, range 6, and townships 18 and 19, range 7, west of the fifth meridian. Resurvey in township 23, range 33, west of the principal meridian. Correction survey in township 52, range 4, and townships 36 and 37, range 12, west of the third meridian. Retracement survey in townships 7, ranges 3, 4 and 5, west of the fifth meridian. Traverse of South Saskatchewan river across township 48, range 24A,
Matheson, H	Ottawa, Ont	west of the second meridian. Correction survey in townships 52 and 53 range 21, townships 51, 52 and 53, range 22 and townships 52 and 53, range 23, west of the fifth meridian.

APPENDIX No. 1-Continued.

Reinspection of contract No. 26 of 1908 Subdivision in townships 61 and 62, west of the fourth meridian. Retractownships 15, 16 and 17, range 27, we second meridian and in township 26, west of the third meridian. Moberly, H. K	Surveyor.	Address.	Description of Work.
Moberly, H. K	les, C. F Toro	nto, Ont	1910. Contracts Nos. 17, 18 and 19 of 1911 and part of contract No. 10 of 1910. Reinspection of contract No. 26 of 1909. Subdivision in townships 61 and 62, range 3 west of the fourth meridian. Retracement it townships 15, 16 and 17, range 27, west of the second meridian and in township 14, range
Montgomery, R. HPrince Albert, Sask Contract No. 10 of 1911. Subdivision ships 53, 54 and 55, range 6, township 55, range 7 and survey of the east of townships 56, ranges 6, 7 and p west of the third meridian. Survey ber berth No. 1686 in townships 51, and 5, west of the third meridian. Contract No. 9 of 1911. Subdivision ships 53 and the south two-third ranges 25 and 26, townships 53, rang 28, west of the second meridian, and half of townships 53, range 1, wes third meridian. Survey of timber 1785 in townships 44, 45 and 46, r townships 44 and 45, range 12, and 44, range 13, west of the second meridian. Fequegnat, M Berlin, Ont Investigation survey in township 2, west of the principal meridian. Contract No. 3 of 1911. Subdivision ship 33, range 8, and townships 32 ranges 9 and 10, west of the princip dian. Correction survey and mounding a fifth meridian through townships 9 inclusive, and portions of township 111 and 112; the twenty-eighth base lir ranges 1, 2 and part of 3, and the ninth base line across part of rang of the fifth meridian part of 3, and the ninth base line across part of rang of the fifth meridian thirteenth to the sixteenth base line 15, west of townships 62, ranges 20 and 15, west of the third meridian. Purser, R. C Windsor, Ont Subdivision in township 52, range 20 the fourth meridian. Miscellaneou veys in township 6, range 9, township 25, range 29 and township 8, range of the principal registance of the principal veys in township 8, range 20 the pourth meridian. Miscellaneou veys in township 6, range 9, township 25, range 29 and township 8, range of the principal very sin township 8, range 20 the pourth meridian. Miscellaneou veys in township 6, range 9, township 25, range 29 and township 8, range of the principal very sin township 8.	berly, H. K Moos	somin, Sask	Survey of timber berths Nos. 1681 and 1682 in township 44, range 9, townships 44 and 45 range 10, and township 45, range 11, west of
Morrier, J. E Ottawa, Ont Contract No. 9 of 1911. Subdivision ships 53 and the south two-third ranges 25 and 26, townships 53, range 28, west of the second meridian, and half of township 53, range 1, wes third meridian. Survey of timber 1785 in townships 44, 45 and 46, r townships 44 and 45 range 12, and 44, range 13, west of the second me 11 requested in the second me 12 townships 44, range 13, west of the second me 12 townships 44, range 13, west of the principal meridian. Contract No. 3 of 1911. Subdivision ship 33, range 8, and townships 32 ranges 9 and 10, west of the principal dian. Flunkett, T. H	ntgomery, R. HPrin	ce Albert, Sask.	Contract No. 10 of 1911. Subdivision of town ships 53, 54 and 55, range 6, townships 54 and 55, range 7 and survey of the east outlines of townships 56, ranges 6, 7 and part of 8 west of the third meridian. Survey of timber berth No. 1686 in townships 51, ranges
Nash, T. S Ottawa, Ont	rrier, J. E Otta	wa, Ont	Contract No. 9 of 1911. Subdivision of town ships 53 and the south two-thirds of 54 ranges 25 and 26, townships 53, ranges 27 and 28, west of the second meridian, and the easi half of township 53, range 1, west of the third meridian. Survey of timber berth No 1785 in townships 44, 45 and 46, range 11, townships 44 and 45, range 12, and township
Pequegnat, M	sh, T. S Otta	wa, Ont	Investigation survey in township 2, range 21
Flunkett, T. H	uegnat, MBerli	n, Ont	Contract No. 3 of 1911. Subdivision of town- ship 33, range 8, and townships 32 and 33 ranges 9 and 10, west of the principal meri-
Ponton, A. W Edmonton, Alta Production of the principal meridian thirteenth to the sixteenth base line. Powell, W. H Ottawa, Ont Contract No. 14 of 1911. Subdivision ships 61, ranges 12, 14 and 15, and to two-thirds of townships 62, ranges and 15, west of the third meridian. Subdivision in township 52, range 20 the fourth meridian. Miscellaneous veys in township 6, range 9, township 25, range 29 and township 8, range of the reprincipal meridian deprivation.	nkett, T. HMeaf	ord, Ont	Correction survey and mounding along the fifth meridian through townships 93 to 110 inclusive, and portions of townships 81, 92 111 and 112; the twenty-eighth base line across ranges 1, 2 and part of 3, and the twenty- ninth base line across part of range 1, west
Powell, W. HOttawa, OntContract No. 14 of 1911. Subdivision ships 61, ranges 12, 14 and 15, and t two-thirds of townships 62, ranges and 15, west of the third meridian. Purser, R. CWindsor, OntSubdivision in township 52, range 20, the fourth meridian. Miscellaneous veys in township 6, range 9, township 25, range 29 and township 8, range of the remained meridian township 8.	nton, A. W Edm	onton, Alta ·	Production of the principal meridian from the
Purser, R. C	vell, W. HOttav	wa, Ont	Contract No. 14 of 1911. Subdivision of town- ships 61, ranges 12, 14 and 15, and the south two-thirds of townships 62, ranges 12, 13, 14
the fourth meridian. Traverse in 38, range 19, west of the second merid	rser, R. CWind	lsor, Ont	and 15, west of the third meridian. Subdivision in township 52, range 20, west of the fourth meridian. Miscellaneous resurveys in township 6, range 9, townships 5 and 25, range 29 and township 8, range 31, west of the principal meridian; township 5, range 7 and township 33, range 21, west of the second meridian; township 36, range 2, township 34, range 3, and township 36, range 6, west of the third meridian; township 43, range 1, township 45, range 2, township 44, range 2, township 44, range 9, and township 49, range 20, west of the fourth meridian. Traverse in township 38, range 19, west of the second meridian, and township 43, range 2, west of the third meridian.

APPENDIX No. 1—Continued.

Surveyor.	Address.	Description of Work.
Ransum, J. T	.Toronto, Ont	Contract No. 5 of 1911. Subdivision of town- ship 39, range 4, township 39 and the south two-thirds of township 40, range 5, and town- ships 39 and 40, ranges 6 and 7, west of the
Rinfret, C	. Montreal, Que	second meridian. Retracement surveys in township 17, range 16. townships 17, ranges 17 and 19, township 17, range 18, townships 16, ranges 21 and 22. townships 15 and 16, range 23, townships 14, 15 and 16, range 24, townships 17 and 18, range 25, townships 15, 16, 17 and 18, range 26, and township 18, range 27, west of the second meridian. Resurvey in township 25, range 29, township 29, range 31, and townships 32, ranges 32 and 33, west of the principal meridian; township 30, range 14, and township 16, range 25, west of the second meridian, township 23, range 6, township 22, range 9, and townships 14 and 15, range 28, west of the third meridian; township 26, range 16, west of the fourth meridian. Traverse in township 32. range 1, west of the second meridian, and township 28, range 15, west of the fourth
Robinson, E. W	Ottawa, Ont	meridian. Survey of the second meridian from the northeast corner of township 61, to the northeast corner of section 1, township 68. Production of the fifteenth base line across ranges 1 to 21, west of the second meridian.
Rolfson, O	Walkerville, Ont	Production of the twenty-second base line across ranges 13 to 26, west of the sixth meridian; survey of the east outlines of townships 83 and 84, and retracement of part of the east outline of township 82, range 13, west of the sixth meridian.
Ross, J. E	Kamloops, B.C	Subdivision in townships 16, 17 and 18, range 14, and townships 16 and 19, range 15, west of the sixth meridian.
		Contract No. 12 of 1911. Subdivision of town- ships 49 and 50, range 9 and townships 50, 51 and 52, range 10, west of the third meri- dian.
		Survey of the seventeenth base line across ranges 13 to 26, and subdivision surveys in townships 65, ranges 26 and 27, west of the third meridian. Reposting along fourth meridian through townships 61, 62 and 62
Scott, W. A	Galt, Ont	Subdivision in townships 32 and 33, range 10 and township 32, range 11, west of the third meridian; townships 9, 10, 12 and 13, range 4, and survey of the east outline of township 11, range 5, west of the fifth meridian. Correction survey in township 26, range 15, west of the third meridian. Retracement in townships 7 and 8, range 6, township 8, range 7, townships 45 and 46, range 16, township 45. range 17, and township 60, range 25, west of the fourth meridian. Traverse in township 41, range 13, west
Smith, J. H	Edmonton, Alta	of the fourth meridian. Contract No. 31 of 1911. Subdivision of township 83 and part of township 82, range 24, townships 82 and 83 and survey of the east

APPENDIX No. 1—Continued.

March 31, 1912—Continued.							
Surveyor.	Address.	Description of Work.					
		outlines of townships 84, ranges 25 and 26, west of the fifth meridian; township 79, range 3, townships 75, 76, 78, 79 and the north third of townships 74, range 4, and townships 75, 76 and the north third of 74, range 5, west					
Steele, I. J	Ottawa, Ont	of the sixth meridian Contract No. 31 of 1911. Subdivision of townships 61 and the south two-thirds of township 62, ranges 24, 25, 26 and 27, west of the third meridian.					
Stewart, L. D. N	Saskatoon, Sask	Contract No. 8 of 1911. Subdivision of town- ships 49, 50, 51, 52 and 53, range 11, west of the second meridian.					
Stewart, W. M	Saskatoon, Sask	Contract No. 16 of 1911. Subdivision of town- ships 58, 59 and 60, ranges 18 and 19, and sur- vey of the east outline of township 57, range					
Stock, J. J	Ottawa, Ont	18, west of the third meridian. Contract No. 30 of 1911. Subdivision of townships 77, 78, 79 and 80, range 17, township 80, range 18, and portions of townships 75, 76					
		and 77, range 16, west of the fifth meridian Subdivision in township 5, range 4, and townships 5 and 8, range 5, west of the fifth meridian. Retracement in townships 21, ranges 4 and 5, and township 23, range 6, west of the principal meridian; townships 2, ranges 11 and 12, townships 1 and 2, range 13, townships 2, ranges 14 and 15, and townships 7, ranges 29 and 30, west of the fourth meridian Correction survey in township 9, range 21, west of the second meridian. Traverse in township 23, range 3, east of the principal meridian and township 4, range 1, west of the fifth meridian.					
Taggart, C. H	Ottawa, Ont	Subdivision in townships 23 and 24, range 18, and townships 24 and 25, ranges 19 and 20, west of the fifth meridian; township 23, range 1, townships 22 and 23, range 2, townships 17, ranges 12 and 13, townships 17 and 18, ranges 14, townships 16, 17 and 18, ranges 15 and 16, township 16, range 17, and townships 17, ranges 18 and 19, west of the sixth meridian. Resurvey in townships 21, 22 and 23, range 2, townships 22 and 23, range 2, and township 16, range 17, west of the sixth meridian. Traverse in township 23, range 18 and township 21, range 29, west of the fifth meridian; townships 21 and 22, range 1, townships 22 and 23, range 2, township 20, range 6, township 22. range 17 and township 17, ranges 18 and 19, west of the sixth meridian. Survey of timber berth No. 545 in township 23, range 18, west of the fifth meridian and timber berth No. 550 in township 20, range 6, west of the sixth meridian.					
		Part of contract No. 3 of 1910. Subdivision of township 39, range 10, west of the second meridian.					
Thompson, W. T	Grenten, Sask	Survey of timber berths Nos. 1666, 1667, 1668, 1669, 1670 and 1671 near Sipanok channel in eastern Saskatchewan, and timber berth No. 1790 in township 38, range 28, west of the principal meridian.					

APPENDIX No. 1-Concluded.

Surveyor.	Address.	Description of Work.
Waddell, W. H	Edmonton, Alta	Contract No. 17 of 1911. Subdivision of town- ships 58, 59 and 60, range 22, townships 59 and 60, range 23, and township 60, range 24, west of the third meridian. Contract No. 33 of 1911. Subdivision of town- ships 58, 59 and 60, ranges 20 and 21, west of the third meridian.
Waldron, J	Moosejaw, Sask	. Contract No. 6 of 1911. Subdivision of township 40 and the north third of township 39. range 8, townships 38 and 40, and the west halves of townships 39 and 41, range 9, the east third of township 41, range 10, the west half of township 41, range 11 and township
Walker, C. M	Guelph, Ont	41, range 12, west of the second meridian. Retracement in townships 13 and 14, range 7, west of the principal meridian. Subdivision in townships 21, 22 and 23, range 6, west of the fifth meridian. Mounding in township 24, range 6, west of the fifth meridian.
Wallace, J. N	Calgary, Alta	Levelling northerly from Prince Albert and Lloydminster along the third and the fourth meridians.
Young, W. H	.Lethbridge, Alta	Contract No. 24 of 1911. Subdivision of township 49, range 14, townships 49, 50 and 51, range 15, and township 51, range 16, west of the fifth meredian.

APPENDIX No. 2.

Schedule showing for each surveyor employed from April 1, 1911, to March 31, 1912, the number of miles surveyed of township section lines, township outlines, traverses of lakes and rivers and resurvey, also the cost of the same.

			dire res	ur (cy, ar		30 01 1110	came.	
Surveyor.	Miles of section lines.	Miles of outlines.	Miles of traverse.	Miles of resurvey.	Total mileage.	Total cost.	Cost per mile.	By day work or by contract.
						8	\$ ets.	
Akins, J. R	83	49		2	134	27,800	207 46	r
Allison, C. B	281	20			432	9,997	23 14	Contract.
	216	18	18		257	7,582	29 50	н
Baker J. C.	277	36	25 14		79 327	9,554 9,556	120 94	Contract.
Bennett, G. A	4		35		207	5,232	25 28	Day.
Aylsworth, C. F Baker, J. C Bennett, G. A Blanchet, G. H		150			150	5,232 26,340	175 60	11
Cautley R H	39 296	31 36	23		70 355	17,431 $10,539$	249 01 29 69	Contract.
Christie, Wm.	280	33	145		458	11,225	24 51	11
Côté, J. L	282	24			306	9,119	29 80	
Cumming, A. L Davies, T. A	44 334	42	$\frac{37}{110}$	144	225 486	12,193 12,483		Day. Contract.
Day, H. S			93	1	93	7,875	84 68	Day.
Day, H. S. Deans, W. J. Fairchild, C. C. France, J.	29		29	23	81	8,525	105 25	11
Francis. J	234 115	24 5		12	258 140	8,722 $10,907$		Contract. Day.
Green, T. D. Hawkins, A. H. Heathcott, R. V.	200		39		275	7,117	25 88	Contract.
Green, T. D.	282	30	31	8	351	9,227	26 29	
Heathcott R V	231	$\frac{120}{40}$	111		$\frac{120}{382}$	18,938 $9,330$	157 82	Contract.
	27	3	13	18	61	8,181	134 11	Day.
		42	22		411	12,197	29 68	Contract.
Kimpe M	264 426	24 42	41 60		$\frac{329}{528}$	9,178 $14,881$	27 90 28 18	11
Laurie, R. C.	199	12	54		$\frac{326}{265}$	6,692	25 25	11
Lighthall, A	20		9	31	60	8,939	148 98	Day.
Inkster, O. Inkster, O. Kimpe, M. Laurie, R. C. Lighthall, A. MacLennan, A. L. Martindale, E. S. Matheson H.	103 57	$\frac{11}{12}$	70	$\frac{26}{134}$	$\frac{210}{209}$	6,525 10,753	31 07 51 45	11
		12	6 43	109	152	3,579	23 55	11
McFarlane, J. B McFarlane, W. G		88			88	3,579 22,717 19,395	258 15	- 11
	586 150	96, 28	70		752	19,395	25 79 31 27	Contract.
McMillan, Geo	25	44		4	178 73	5,566 19,653	269 2	Day.
McMillan, Geo McNaughton, A. L Montgomery, R. H Morrier, J. E	86	18	7		111	10,564	95 1	11
Morrier J. F.	261 236	60 36	206		533	12,310	23 1 ¹ 26 4	Contract.
Pequegnat, M.	210	21	80 15	10	352 256	9,304 7,030	27 46	11
Plunkett, T. H				130	130	7,030 17,661	135 80	Day.
Powell W H	278	72 50	164		72 492	14,233 12,063	197 68 24 52	Contract.
Purser, R. C	10		47	80	137	4,940	36 06	Day.
Ransom, J. T	335		18	6	359	10,685	29.76	Contract.
Morrier, J. E. Pequegnat, M. Plunkett, T. H. Ponton, A. W. Powell, W. H. Purser, R. C. Ransom, J. T. Rinfret, G. Robinson, E. W. Rolfson, O. Roy, J. E. Saint-C yr, A. Scott, W. A. Smith, J. H. Steele, I. J. Stewart, L. D. N.		163	16	787	803 163	$\begin{array}{c} 10,840 \\ 16,753 \end{array}$	13 50 102 78	Day.
Rolfson, O.		90		2	92	26,944	292 87	11
Roy, J. E	240	12	214		466	10,045	21 56	Contract.
Scott W 1	9 30	82 24	8	15 168	106 230	13,879 9,467	130 93 41 16	Day.
Smith, J. H.	555	79	58	21	694	18,967		Contract.
Steele, I. J	300	40	126		466	11,921	25 58	11
Stewart, L. D. N	240 295	36	27		303	8,866	29 26 28 77	11
Stewart, W. M Stock, J. J	324	48 54	37 18		380 396	10,934 11,492	28 77 29 02	11
	10	4	5	288	307	8,746	28 49	Day.
Taggart, C. H. Teasdale, C. M. Waddell, W. H.	57 48		38	20	115	10,426	90 66 26 33	Contract.
Waddell, W. H.	566	36	$\frac{12}{225}$		60. 827	1,580 19,554	26 33 23 64	Contract.
Waldron, J.	290			1	291	8,570	29 45	- 11
Waldron, J. Walker, C. M. Young, W. H.	75	26	9	22	132	11,348	85 97	Day . Contract.
i	212	30	10	6	258	8,177	31 09	Contract.
Total	10,098	2,041	2,577	2,317	17,033	715,247		

APPENDIX No 3.

List of lots in the Yukon Territory, survey returns of which have been received from April 1, 1911, to March 31, 1912.

GROUP No. 2.

Lot No.	Acres.	Surveyor.	Year of Survey.	Date of Approval.	Claimant.	Remarks.
228	10.00	F. H. Kitto	1911	Apr. 12, 1912	Granville Power Co	Surface.
295	1.60	11			Chas. Fisher	
298	160.00	11	1911	Mar. 21, 1912	Chas. Fisher	Surface.
321	51.65	11	1911	Apr. 12, 1912	Granville Power Co	"Huskey" Min. Cl.
322	51.65		1911	Apr. 12, 1912	Granville Power Co	"Whiteside" "
323	51.65	11	1911	Apr. 12, 1912	Granville Power Co	" Boyle " "
324	51 65	11	1911	Apr. 12, 1912	Granville Power Co	"Kitto"
325	51.65		1911	Apr. 12, 1912	Granville Power Co	"Alexander" "
326	51.65	11	1911	Apr. 12, 1912	Granville Power Co	"Granville"
333	51.65	11		Apr. 12, 1912	Granville Power Co	"Morgan"
334	51.65	11	1911	Apr. 12, 1912	Granville Power Co	" Maggie" "
335	51.65	11	1911	Apr. 12, 1912	Granville Power Co	North Fork" "
336	51.65	11	1911	Apr. 12, 1912	Granville Power Co	"Elma"
337	51.65		ì		Granville Power Co	John, Min. Claim.
338	51.65	11	1911	Apr. 12, 1912	Granville Power Co	"Stella" "
340	22.3		1911	Apr. 12, 1912	John Lee	Surface.
		}				

GROUP No. 5.

115	45.56	H. G. Dickson.	1908	Jan. 2, 1912	William Clark	"Verona" Mineral Claim.
162	43:39	11	1912	Apr. 19 1019	H. G. Dickson	
173	160.00		1910	Sout 96 1011	Karl Weik	"Keewenaw"
174	51.65	11	1910	Sept. 26, 1911		"Gladstone"
175	37.19		1910	Jan. 5, 1912		Surface.
201	50.02		1910	Sept. 26, 1911		
201	50 02	11	1310	Берь. 20, 1.111	11	eral Claim.
202	46.50		1910	Sept. 26, 1911	"	"Poppy"
203	41.64	11	1910	Sept. 26, 1911		"Leary"
203	20.06	11	1910			"Evening Star"
205	46.53	11	1910	Sept. 26, 1911 Sept. 26, 1911		C4 3 5 4 33
206	51.65	11	1910	Sept. 26, 1911		"Star Ruby"
207	44.71		1910		11	"Wild Rose"
207	51.65	11	1910	Sept. 26, 1911 Sept. 26, 1911	11	"Big Four"
209	50.58	11	1910			"Alice"
210	50.90	11	1910	Sept. 26, 1911		"Solo"
211	43.67	11	1910	Sept. 26, 1911 Sept. 26, 1911		"Brimstone No. 1"
211	40 01	17	1910	Берг. 20, 1911	11	Min. Cl.
212	50.24		1910	Sept. 26, 1911	11	
213	23.39	11	4040	Sept. 26, 1911		"J. C."
214	44.62	11	1010	Sept. 26, 1911		"Vivian"
215	33.76	11	1910	Sept. 26, 1911		ALL MANUAL AND DESCRIPTION AND
216	38.02	1	1010	Sept. 26, 1911		"Skagway"
217	40.45	11	1010	Sept. 26, 1911		"Yukon"
218	24.94		1910			"Bismark"
219	51.65		1910	Sept. 26, 1911 Sept. 26, 1911		"Contact"
220	39.78	" .	1910	Sept. 26, 1911 Sept. 26, 1911		"Zelandian"
221	25.92	11	1010	Sept. 26, 1911		"Rawhide"
222	64.61	0	1911		J. O. Williams et al	"May"
223	23.89			Dec. 29, 1911		24 (71)
440	20 00	0	1911	1000. 20, 1011		Diamitock II
-	1					1

GROUP No 6.

Lot No.	Acres.	Surveyor.	Year of Survey.	Date of Approval.	. Claimant.	Remarks.
115	51.65	H. G. Dickson	1910		A. R. Auston et al	"Utah" Min. Claim.
116	51.08	11	1910			"Rambler" "
117	45.38	11	1910		11	"Montana" "
118	51.65	11	1910			"Colorado" "
119	50.09	11	1910		11	"Texas"
120	49.68		1910			"Reco" "
	10 00	'' ''	1010		"	11000

GROUP No. 10.

	{	1	1	1		
15	51.65	H. G. Dickson	1910	May 31, 1911 J	John McMeekin et al	"Bonanza" Min. Cl.
16	160.00					
						Min. Claim.
17	51.65	"	1910	Jan. 5 1912 I	Karl Anderson	
19	51.20	"			John McMeekin et al	
20	43.81	"			11	
21	30.71				"	
21	20 11	"	1010	May of, Ioii	"	Min. Claim.
22	10.49		1011	Sont 95 1011	S. Rawlinson	
27	31.82					
					Thos. E. Bee et al	
28	48.75	11				
29	15.33	11	1910	Apr. 12, 1912		Surface.
30	15.70	11	1910	May 31, 1911	John McMeekin et al	"Star" Fract. M. Cl.
31	9.93	11	1910	Sept. 25, 1911	Thos. E. Bee	Surface.
32	5.10				C. F. Mack	
			l			
	1	l		1		

GROUP No. 15.

3	5.65	H. G.	Dickson	1911	Jan. 4	l, 1912	Harry Chambers.	 Surface.
		l			1.			

APPENDIX No. 4.

List of miscellaneous surveys in the Yukon Territory, returns of which have been received from April 1, 1911, to March 31, 1912.

		•
Year.	Surveyor.	Description of Survey.
		Yukon Crossing-Whitehorse division, in fifteen sections of ten miles each, of the Dawson-Whitehorse road. Last division of Carmack's reference traverse for the Department of the Interior.

APPENDIX No. 5.

STATEMENT of work executed in the office of the Chief Draughtsman:	_
Letters of instruction to surveyors	241
Progress sketches received and filed	1,142
Declarations of settlers received and filed	86
Returns of timber berths received	29
Plans received from surveyors	330
Field books received from surveyors	552
Timber reports received	235
Observations for magnetic declination received	746
Preliminary township plans prepared	328
Sketches made	5,995
Maps and tracings made	80
Plans of Yukon lots received	64
Plans of miscellaneous Yukon surveys received	16
Returns of surveys examined—	
Township subdivision	276
Township outline	252
Road plans	293
Railway plans	180
Yukon lots	64
Miscellaneous Yukon surveys	16
Mineral claims	51
Timber berths	49
Correction and other miscellaneous surveys	196
Township plans compiled	500
Townsite settlement and other plans compiled	19
Proofs of plans examined	34
Township plans printed	797
Townsite and settlement plans printed	11
Miscellaneous plans printed	106
Descriptions written	11
Areas calculated	1,635
Pages of field notes copied	343
Applications for various information dealt with Files received and returned	2,973
Letters and memoranda drafted	1,848
Books received from Record Office and used in connection	8,711
with office work	5,266
Books returned to Record Office	5,417
Plans other than printed township plans received from Record	J, TI 1
Office and used in connection with office work	951
Plans returned to Record Office	890
Volumes of plans received from Record Office and used in	000
connection with office work	140
Volumes of plans returned to Record Office	129
Books sent to Record Office to be placed on record	484
Plans other than township plans sent to Record Office to be	
placed on record	137
Sectional maps (3 miles to 1 inch)—	
Revised	43
Reprinted	34
Sectional maps (6 miles to 1 inch)—	
Reprinted	23

APPENDIX No. 6.

List of new editions of Sectional Maps compiled from April 1, 1911, to March 31, 1912.

Scale 3 miles to one inch.

No.	Name.	No.	Name.	No.	Name.	No.	Name.
23 64 65 68 70 71 72	Emerson	120 121 122 123 163 165 169	Regina. Qu'Appelle Riding Mountain. Manitoba House. Fort Alexander. Donald. Rosebud. Touchwood. Yorkton	173 213 214 216 221 266 269	Fairford Washow. Athabaska. Rocky Mt. House. Sullivan Lake. Swan River. Ribstone Creek. Prince Albert South. Pasquia.	313 318 319 320 366 462	Mossy Portage Brulé Shell River. Prince Albert North. Carrot River Saddle Lake. Dunvegan

Scale 6 miles to one inch.

No.	Name.	No.	Name.	No.	Name.	No.	Name.
21 64 68	Souris. furtle Mountain Porcupine Swift Current. Moosejaw. Moose Mountain	72 73 118	Brandon. Portage la Prairie Winnipeg. Rush Lake. Qu'Appelle. Donald.	172 173 214	Fairford	$ \begin{array}{r} 221 \\ 267 \\ 268 \end{array} $	Humboldt. Swan River. Battleford. Carlton Saddle Lake

3 GEORGE V., A. 1913

STATEMENT of work executed in the Photographic Office from April 1, 1911 to March 31, 1912. APPENDIX No. 7.

Total.	1,435 1,312 10,622 10,622 1,363 1,363 195 1,136 1,463 1,141	20,771
42 x 48	69	176
36 x 42 42 x 48 Total	38 38	198
11 53	72	27
90 x 36	24	242
24 x 32		123
8 x 10 10 x 12 11 x 14 15 x 18 16 x 18 18 x 20 20 x 24 24 x 30 24 x 32 30 x 36 32 x 4	62 140	230
20 x 24	13: 	161
18 x 20	96 82 82 90 16 1,114	1,514
16 x 18	8. 8.55 8.55 8.78 9.78	1,221
15 x 18	105	105
11 x 14	23 344 29 18 18 47 174	650
10 x 12	57 57 13 1	150
8 x 10	202 202 13 14 4 4 10 25 25	359
5 X 7	832 1,081 3,664 1,027 8 8 8	7,238
3‡ x 5½	580 18 18 332 443 4443	7,937
3‡ x 3‡ 3‡ x 5½	366	291
	Dry plates and films. Brounde prints Solio prints Solio prints Artura prints Artura prints Vandyke prints Blue prints Lantern transparencies Photographs monuted Wet plate negatives.	Totals

APPENDIX No. 8.

STATEMENT of work executed in the Lithographic Office from April 1, 1911, to March 31, 1912.

35. 41		Maps.		To	OWNSHIP PL	ANS.	Forms,		
Month.	No.	Copies.	Im- pressions.	No.	Copies.	Im- pressions.	No.	Copies.	Im- pressions.
1911.									
April May June July August September October November December 1912.	8 11 1 15 15 13 16 8 10	4,000 7,150 150 4,400 11,025 5,950 7,250 3,820 4,500	4,000 15,375 150 5,225 26,825 7,125 7,250 3,820 4,500	122 38 1 87 58 155 37 158 98	24,400 7,600 200 17,400 11,600 31,000 7,206 31,600 19,600	24,400 8,200 200 18,400 12,800 31,000 7,206 31,600 19,600	1 2 4 2 9 7 3 3 3	600 10,600 375 550 4,000 6,260 720 2,220	1,200 10,600 375 650 4,900 6,260 920 2,220
January February March	11 9 17	16,280 4,125 87,825	71,075 5,250 156,140	55	11,000	12,000	9 4 6	19,925 2,500 15,200	22,92 5 2,500 15,200
Total	134	156,475	306,735	841	168,006	171,806	50	62,950	67,750

RECAPITULATION.

	No.	Copies.	Impressions.	Cost.
Maps Townships Forms Grand total	134	156,475	306,735	2,734 00
	841	168,006	171,806	4,060 00
	50	62,950	67,750	850 00
	1,025	387,431	546,291	7,644 00

APPENDIX No. 9.

List of employes of the Topographical Surveys Branch at Ottawa, giving the name, classification, duties of office and salary of each. (Metcalfe street, corner of Slater.)

Name.	Classif	ication.	Duties of Office.	Salary.
	Division.	Sub- division.		
				\$
Deville, E., D.T.S., LL.D	1	A	Surveyor General	3,650
	Corresp	ondence.	9	
Brady, M Cullen, M.J. Moran, J. F. Williams, E. R. Addison, W.G. Pegg, A. O'Meara, M.T. Pick, A.C.	3 3 3	B A A A B	Secretary. Stenographer. Typewriter and clerk. Correspondence clerk. Typewriter. Messenger.	2,400 1,200 900 900 800 800 550
	Acco	ounts.		
Hunter, R.H	2 3	A	Accountant	2,100 1,100

Chief Draughtsman's Office-General direction and supervision of the technical work.

Shanks, T., B.A.Sc., D.L.S	1	B	Chief draughtsman	2,550
Brown, T. E., B.A	1	B		2,550

Chief Draughtsman's Office, First Section—Survey instructions and general information.

Name.		ication.	Duties of Office.	Salary.
	Division	division.		
•				\$
Barber, H. G., Grad. S.P.S. Rice, F. W., Grad. School of Mining MacIlquham, W. L., B.Sc. Peaker, W. J., Grad. S.P.S. Sylvain, J. Carroll, M. J., Grad. S.P.S. Rochon, E. C. McRae, A. D., B.A., B.Sc. Grant, A. W., B.A. Hayward, H. E., B.Sc. Milliken, J. B., B.A., B.Sc. MacMillan, J. P., B.E. Wadlin, L. N., B.Sc. Cordukes, J. P., B.Sc. Gagnon, J. N. H., B.AS. Armstrong, W. B., B.Sc. Spero, J. E. Nevins, L. A., B.A. McDonald, J. F., B.A. Holbrook, C. H. Burkholder, E. L.	222222222222222222222222222222222222222	A A A A B B B B B B B B B B B B B B B B	Chief of section Asst. chief of section """" Draughtsman."" """ """ """ """ """ """ """	1,900 1,900 1,900 1,600 1,650 1,600 1,400 1,400 1,300 1,300 1,200 1,200 1,200 1,200 1,200 1,200

Chief Draughtsman's Office, Second Section—Surveys in Manitoba, Saskatchewan, Alberta and Yukon Territory.

Nash, T. S., Grad. S.P.S., D.L.S.	1	В	Chief of section	2,550
Burgess, E. L., Grad. S.P.S., D.L.S., O.L.S.	$\tilde{2}$	Ā	Asst. chief of section	1,900
Donnie E M R Sc	$\bar{2}$	Ā	11 11 11	1,900
Dennis, E. M., B.Sc. Elder, A. J., Grad. S.P.S., D.L.S.	$\frac{2}{2}$	A		1,900
Handanian E D Card C D C D T C	$\frac{2}{2}$	A		1,900
Henderson, F. D., Grad. S.P.S., D.L.S		A	11 11	1,900
Hill, S. N., Grad. S.P.S.	$\frac{2}{2}$		11 11	
Genest, P. F. X., Q.L.S		A	11 0	1,900
Robertson, D. F., Grad. S.P.S	2	A	H	1,700
Kitto, F.H., D.L.S.	2	A	In charge of Dawson office	1,600
Sutherland, H. E., B.Sc	2	В	Draughtsman	1,400
McClennan, W. D	2	В	0	1,600
Roger, A., O.L.S.	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	В	11	1,600
Spreckley, R. O.	2	В	11	1,500
Goodday, Leonard	2	В	"	1,400
Bray,P	2	В		1,400
Harrison, E. W	2	$\bar{\mathrm{B}}$	11	1,300
Ault, H. W.	2	B	"	1,300
vtlo W I	2	B	1	1.050
Lytle, W. J.	9	B		1,050
LaBeree, E. E.	6	B	11	1,050
Jones, G. S., Grad. S.P.S., O.L.S	$\frac{2}{2}$	В	В	1,050
Bradley, J. D.	2		11	
Lagnat, G. H.	2	В	Z	1,050
Fournier, O. E., B.A.S	2	В	11	1,050
Thomas, A. S., B.Sc	$\frac{2}{2}$	В	0	1,200
Smith, H. C	2	В	11	1,200
Macdonald, J. A	3	В	Clerk	800

Chief Draughtsman's Office, Third Section—(Imperial Building, Queen street).

Copying plans for reproduction.

Name.	Classif	ication.	Duties of Office.	Salary.	
	Division	Sub- division.			
Engler, Carl., B. A., D.L.S May, J. E. O'Connell, J. R. Moule, W. J. Helmer, J. D. Dawson, R. J. Archambault, E. Clarke, G. N. Watters, James. McLennan, A. G. Brown, A. Ebbs, E. J. Baril, C.	2 2 2 2 2 3 3 3	B A A B B B B B A A A B	Chief of section	\$ 2,100 1,300 1,700 1,600 1,100 1,100 1,100 1,100 1,200 1,200 900 900 750	

Chief Draughtsman's Office, Fourth Section—(Metcalfe street, corner of Slater). British Columbia surveys.

Chief Draughtsman's Office, Fifth Section—(Imperial Building, Queen street). Mapping.

Smith, J Begin, P. A Flindt, A. H.	$rac{2}{2}$	B A A	Chief of section	2,550 1,950 1,700
Blanchet, A. E. Davies, T. E. S	$\frac{2}{2}$	B B	Draughtsman	1,600 1,600
Perrin, V. D'Orsonnens, A.	$\frac{2}{2}$	B	11	1,600 1,600
Davy, EVilleneuve, E	2	B	9	1,400 1,100 1,100
Bergin, W Howie, Jas Purdy, W. A	2	B	11	1,100 1,000 1,100
Brigly, J. H.	$\frac{2}{2}$	B	11	1,30

Chief Draughtsman's Office, Sixth Section—(Imperial Building, Queen street).

Scientific and topographical work.

Name.	Classif	Sub-	Duties of Office.	Salaries.
Dodge, G. B., D.L.S. Coté, J. A., Grad. R.M.C. Watt, G. H., Grad. S.P.S., D.L.S. Blanchard, J. F. Chartrand, D. E., B.Sc. Colquboun, G.A., B.Sc. Cousineau, A., B.Sc. Dozois, L. O. R., Grad. R.M.C Freeland, J. J., M. A. Herbert, W. H., B.Sc. Parry, H., B.Sc., D.L.S. Ross, R.C., B.Sc. Lynch, F. J. Watson, J. W.	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	B A A B B B B B B B B B B B B B B B B B	Chief of section. Asst. chief of section. Draughtsman. """" """ """ """ """ """ """ """ """	\$ 2,550 1,600 1,900 1,050 1,100 1,200 1,100 1,100 1,200 1,200 1,200 1,000 1,200 750
Geographic Board (V	Voods 1	Building	g, Slater street).	
Whitcher, A. H., F.R.G.S., D.L.S	2	A	Secretary	2,100 00
Photographic Office (Me	tcalfe s	treet, c	orner Slater street).	
Carruthers, H. K Woodruff, John Smith, L. G. Whitcomb, H. E. Morgan, W. E. Kilmartin, A. Devlin, A. Ouimet, E. G.	2 2 2 3 3 3 3 3	A A B A A A B B	Process photographer Chief Photographer	1,900 1,900 800 1,200 1,200 900 800 800

Lithographic Office (unclassified) (Metcalfe street, corner Slater street).

Name.	Occupation.	Salaries.		
Moody, A Burnett, E. Thicke, C. R Deslauriers, J. H.	Foreman	\$27 00 pe	r week	
Burnett, E	Lithographer	25 00	11	
Гhicke, С. R	11	23 00	11	
Deslauriers, J. H	Transferrer	20 00	11	
Bergin, J. Fhicke, H. S. Boyle, S. Fagnon, J. Kane, P.	Printer	21 00	11	
Thicke, H. S		20 00	11	
Boyle, S	Stone polisher	15 00	11	
Gagnon, J	Press feeder	12 00		
Kane, P		9 10	11	
Easton, R. M	Printer	19 50	11	
Hare, É. H	Asst. photographer	15 00	11	

APPENDIX No. 10.

LIST of Dominion Land Surveyors who have been supplied with Standard Measures.

Name.	Address.	Date of Birth.	Date of Appointment or of Commission.	Remarks.
Akins, James Robert. Allison, Calvin Bruce. Ashton, Arthur Ward. Austin, George Frederick. Aylen, John Aylsworth, Charles Fraser. Baker, James Clarence. Baker, Mason Hermon Bartlett, Ernest. Bayne, George A Beatty, David. Begg, William Arthur Belanger, Phidime Roch Arthur	Ottawa, Ont South Woodslee, Ont. Ottawa, Ont. Not known. North Bay, Ont. Madoc, Ont. Vernilion, Alta. St. Thomas, Ont. Smithville, Ont. Winnipeg, Man. Parry Sound, Ont. Hamilton, Ont. Ottawa, Ont.	Sept. 2, '76 June 16, '84 Nov. 5, '80 Sept. 21, '62 May 12, '78 July 9, '84 Oct. 25, '42 July 15, '82 Mar. 5, '53	Mar. 14, '10 Mar. 28, '10 May 29, '08 April 14, '72 May 29, '85 May 13, '86 May 18, '06 Aug. 6, '08 Jan. 16, '11 April 14, '72 June 8, '09 May 17, '80	O. L. S. O. L. S. M. L. S. O. L. S. Inspector of Surveys, Topographical Surveys Branch, Dept. of the
Belleau, Joseph Alphonse				Branch, Dept. of the Interior.
Belyea, Albert Palmer Corey Bemister, George Bartlett	Edmonton, Alta Winnipeg, Man		July 14, '09 June 11, '78	M. L. S. Engineering Dept. C. N. R.
Bennett, George Arthur Berry, Edward Wilson Bigger, Charles Albert				B.C.L.S., O.L.S., Assistant Superintendent
Bingham, Edwin Ralph Blanchet, Guy Houghton Boswell, Elias John Bourgeault, Armand	Fort William, Ont Ottawa, Ont Not known St. Jean Port Joli,	'78 Feb. 12, '84	Oct. 25, '06 Mar. 10, '10 Mar. 18, '03	Geodetic Survey. O. L. S. O. L. S., M. L. S.
Bingham, Edwin Ralph Blanchet, Guy Houghton Boswell, Elias John Bourgeault, Armand Bourgault, Charles Eugene Bourget, Charles Arthur Bowman, Edgar Peterson Bowman, Herbert Joseph Brabazon, Alfred James	Que Lauzon, Levis, Que. Lauzon, Que West Montrose, Ont. Berlin, Ont Ottawa, Ont	Feb. 23, '58 Sept. 6, '61 Aug. 26, '51 June 18, '65	Mar. 29, '83 Feb. 21, '88 May 14, '84 Sept. 26, '07 Feb. 16, '88 May 13, '82	Q. L. S. Q. L. S. Q. L. S. Q. L. S. Q. L. S. Q. L. S. Doundary Survey, Dept.
Brady, James	Golden, B. C	Nov. 24, '40	April 14, '72	O. L. S., B. C. L. S.
Bray, Samuel Bray, Lennox Thomas Brenot, Lucien Bridgland, Morrison Parsons Broughton, George Henry. Brown, Charles Dudley. Brown, Edgar Carl. Brown, Thomas Wood. Browniee, James Harrison Bucknill, Walter Birch. Burd, James Henry. Burgess, Edward LeRoy. Burnet, Hugh.	Amherstburg, Ont Ottawa, Ont Calgary, Alta. Penticton, B.C Winnipeg, Man. Regina, Sask. Edmonton, Alta	Mar. 14, '77 Aug. 31, '87 Dec. 20, '78 Aug. 12, '86 Feb. 25, '83 Nov. 28, '86	Feb. 18, '03 Mar. 18, '10 Mar. 10, '05 June 3, '09 April 4, '10 May 23, '11 June 21, '09	Dept. of Indian Allians. O. L. S. B. C. L. S.
Browniee, James Harrison Bucknill, Walter Birch Burd, James Henry Burgess, Edward LeRoy	Vancouver, B.C Vancouver, B.C Weyburn, Sask Ottawa, Ont	Mar. 22, '56 May 8, '73 Sept. 7, '71 May 5, '78	April 15, '87 Mar. 19, '08 May 18, '11 Feb. 23, '05	M. L. S., B. C. L. S. B. C. L. S. O. L. S., S. L. S. O. L. S., T. S. Branch,
Burwash, Nathaniel Alfred Burwell, Herbert Mahlon Campbell, Alan John Campbell, Alexander Stewart Carbert, Joseph Alfred	Vancouver, B.C Sidney, B.C Kingston, Ont Medicine Hat, Alta	Sept. 28, 79 Oct. 23, '63 Oct. 1, '82 Mar. 7, '80 Feb. 4, '56	Mar. 6, '07 Feb. 17, '87 April 13, '09 Mar. 6, '09 May 12, '80	O. L. S. B. C. L. S. O.L.S., District Engineer
Carpenter, Henry Stanley Carroll, Cyrus	Regina, Sask	Feb. 8, '74	Feb. 20, '01	Dept. of Public Works, O. L. S.
Carroll, Cyrus	Regina, Sask	Dec. 6, '34	April 14, '72	0. L. S.

APPENDIX No. 10 .- Continued.

List of Dominion Land Surveyors who have been supplied with Standard Measures—Continued.

Name.	Address.	Date of Birth.	Date of Appoint- ment or of Commission	Remarks.
Carson, Percy Alexander Carthew, William Morden Cautley, Reginald Hutton Cautley, Richard William Cavana, Allan George Charlesworth, Lionel Clare	Kamloops, B.C Edmonton, Alta Edmonton, Alta Edmonton, Alta Orillia, Ont	Dec. 25, '77 Oct. 19, '86 Dec. 6, '79 Aug. 3, '73 Jan. 22, '58 Nov. 17, '73	Feb. 22, '06 Mar. 29, '10 May 1, '05 Sept. 2, '96 Nov. 16, '76 Mar. 24, '03	Hydrographic Survey. O.L.S. O.L.S., Dept. of Public
Chase, Albert Victor. Chilver, Charles Alonzo Christie, William Clarke, Charles Wentworth Cleveland, Ernest Albert. Coates, Preston Charles Cokely, Leroy S. Côté, Joseph Adélard Côté, Jean Léon. Cotton, Arthur Frederick	Orillia, Ont	Mar. 4, '83 Feb. 8, '83 Feb. 13, '76 Nov. 19, '75 May 12, '74 May 16, '81 Nov. 23, '84 June 5, '64 May 6, '67	Oct. 11, '10 Feb. 22, '07 Mar. 22, '06 Mar. 24, '10 June 27, '99 Apr. 19, '07 Mar. 22, '10 May 14, '84 Mar. 21 '90	Works for Alberta. O.L.S. B.C.L.S. B.C.L.S.
Craig, John Davidson	Ottawa, Ont	Jan. 30, 76	Feb. 24, '02	Boundary Surveys, Dept. of the Interior.
Cummings, John George. Dalton, John Joseph. Davies, Thomas Attwood. Dawson, Frederick James. Day, Harry Samuel. Deans. Williams James.	Cranbrook, B. C Weston, Ont Edmonton, Alta Ashcroft, B. C St. John, N. B. Brandon, Man	Nov. 19, '73 June 12, '54 Sept. 22, '86 Nov. 14, '85 May 4, '60	Feb. 17, '04 Apr. 17, '79 Feb. 22, '06 Sept. 12, '10 Mar. 9, '10 May 13, '86	O.L.S.
Cumming, Austin Lewis. Cummings, Alfred. Cummings, John George. Dalton, John Joseph. Davies, Thomas Attwood. Dawson, Frederick James. Day, Harry Samuel. Deans, Williams James. de la Condamine, C. Dennis, John Stoughton. Denny, Herbert C. Dickson, Henry Godkin. Dickson, James Dobie, James Samuel Doupe, Jacob Lonsdale.	High River, Alta Calgary, Alta Not known. Whitehorse, Y. T. Fenelon Falls, Ont. Thessalon, Ont.	Feb. 13, '75 Oct. 22, '56 Mar. 29, '64 Oct. 30, '34 Oct. 15, '73	May 4, '10 Nov. 19, '77 Apr. 1, '82 Mar. 19, '89 Apr. 14, '72 Mar. 22, '06	D.T.S. M.L.S. O.L.S. O L.S.
Drewry, William Stewart Driscoll, Alfred Drummond, Thomas Ducker, William A	Nelson, B.C Edmonton, Alta Montreal, P.Q Winnipeg, Man	Sept. 14, '67 Jan. 20, '59 July 2, '651856 Apr. 4, '52 Language Apr. 4, '52	Oct. 6, '88 Nov. 14, '83 Feb. 23, '87 June 24, '78 Mar. 30, '83	M.L.S., Asst. Land Commissioner for C.P.R. O.L.S., B.C.L.S. B.C.L.S. D.T.S. O.L.S., M.L.S.
Drewry, William Stewart. Driscoll, Alfred Drummond, Thomas Ducker, William A Dumais, Paul T. Concorde. Earle, Wallace Sinclair Edwards, George Edwards, William Milton Ellacott, Charles Herbert Empey, John Morgan Engler, Carl	Victoria, B.C. Ponoka, Alta. Lethbridge, Alta Victoria, B.C. Calgary, Alta. Ottawa Ont	Feb. 8, '89 June 13, '42 June 21, '79 Dec. 24, '66 Apr. 16, '74 Sept. 30 '72	Mar. 29, 82 May 18, '11 Apr. 14, '72 Apr. 5, '10 Feb. 22, '99 Feb. 23, '05 Feb. 23, '05	Q.L.S. U.L.S. B.C.L.S. O.L.S. T.S. Branch Dept. of
Fairchild, Charles Courtland Farncomb, Alfred Ernest Fawcett, Thomas	Brantford, Ont Edmonton, Alta Ottawa, Ont	Feb. 21, '67 May 22, '73 Oct. 28, '48	Feb. 20, '01 Mar. 12, '02 Nov. 18, '76	O.L.S. O.L.S., D.T.S. Boundary Surveys, Dept. of
Fawcett, Adam Ferguson, George Hendry Findlay, Allan Fletcher, James Allan Flontaine, Louis Elie Francis, John Galletly, James Simpson Garden, James Ford Garden, George H Garden, Charles	Gravenhurst, Ont. Toronto, Ont Winnipeg, Man. Fletcher, Ont. Levis, P.Q. Portage la Prairie, M Brooklin, Ont.	Jan. 20, '83 Oct. 15, '80 Mar. 26, '89 Oct. 3, '68 Dec. 22, '52 Apr. 15, '88	Feb. 22, '93 June 2, '09 Mar. 21, '08 May 18, '11 Nov. 30, '92 June 17, '75 May 18, '11	M.L.S.
Garden, James Ford	Vancouver, B. C Lethbridge, Alta Not known	Feb. 19, '47	May 13, '80 Apr. 14, '72 Apr. 14, '72	B.C.L.S. Deputy Surveyor for N.B. Deputy Surveyor for N.B.

APPENDIX No. 10.—Continued.

List of Dominion Land Surveyors who have been supplied with Standard Measures—Continued.

Name.	Address.	Date of Birth.	Date of Appointment or of Commission.	Remarks.
Garner, Albert Coleman Gauvreau, Louis Pierre Gibbon, James Glover, Arthur Edward Gordon, Maitland Lockhart Gordon, Robert John Gore, Thomas Sinclair Graham, John Robertson Gray, James Edward Green, Alfred Harold Green, Thomas Daniel. Green, Frank Compton Grover, George Alexander Hamilton, Charles Thomas Hamilton, James Frederick Harris, John Walter	S. Qu'Appelle, Sask. Not known. Vancouver, B.C. Toronto, Ont. Vancouver, B.C. Lethbridge, Alta Victoria, B.C. Vancouver, B.C. Toronto, Ont. Nelson, B.C. Ottawa, Ont. Nelson, B.C. Toronto, Ont. Vancouver, B.C. Lethbridge, Alta. Winnipeg, Man.	Sept. 6, '78 June 25, '60 Mar. 4, '87 June 18, '69 — 1852 Apr. 18, '87 Oct. 12, '81 Jan. 20, '79 Dec. 21, '57 July 29, '84 Apr. 4, '69 Feb. 26, '45	May 27, '07 Apr. 14, '72 Feb. 12, '91 Mar. 11, '11 Feb. 18, '04 Mar. 12, '02 Apr. 19, '79 May 26, '10 Mar. 11, '11 Feb. 23, '05 May 19, '84 May 8, '03 Feb. 18, '04 May 18, '11 June 2, '69 Apr. 14, '72	O. L. S. B. C. L. S. B. C. L. S. O. L. S. B. C. L. S. O. L. S. O. L. S., M. L. S., City Surveyor.
Harrison, Edward Harvey, Charles. Hawkins, Albert Howard Heaman, John Andrew. Hcathcott, Robert Vernon Henderson, Walter Herriot, George Henry. Heuperman, Frederick Justinus. Heuperman, Lambertus Fred. Hobbs, Wilfrid Ernest Holcroft, Herbert Spencer. Hopkins, Marshall Willard. Hubbell, Ernest Wilson.	Belleville, Ont. Kelowna, B. C. Listowel, Ont. Winnipeg, Man. Edmonton, Alta. Not known. Souris, Man. Calgary, Alta Calgary, Alta. Winnipeg, Man. Toronto, Ont. Edmonton, Alta. Ottawa, Ont.	May 5, '76 July 27, '62 June 3, '75 July 7, '81 Feb. 23, '83 July 23, '87 Sept. 20, '81 Mar. 12, '87 Sept. 4, '77 May 24, '61 Nov. 5, '62	May 14, '10 Mar. 6, '06 July 15, '09 May 13, '07 Nov. 17, '83 Sept. 18, '09 Mar. 13, '11 Mar. 29, '10 Mar. 5, '12 Feb. 18, '03 Feb. 20, '01	B. C. L. S. O. L. S. O. L. S. O. L. S. Inspector of Surveys, Topographical Surveys Branch, Dept. of In-
Inkster, Oluff. James, Silas Jephson, Richard Jermy Johnson, Alfred William Keith, Homer Pasha Kimpe, Maurice King, William Frederick Kirk, John Albert Kitto, Franklin Hugo Klotz, Otto Julius Knight, Richard H	Summerland, B. C Dawson, Y. T Dominion Observa-	Jan. 9, '54 Mar. 28, '80 Mar. 31, '52	May 11, '80 Mar. 6, '08 Nov. 19, '77	O. L. S. O. L. S., B. C. L. S. B. C. L. S. D.T.S. Chief Astronomer Dept. of Interior. O. L. S., B. C. L. S. O. L. S., D. T. S., Astro-
Knight, Richard H. Lang, John Leiper. Latimer, Frank Herbert. Laurie, Richard C. Lawe, Henry. Lemoine, Charles Errol. Lendrum, Robert Watt. Lighthall, Abram. Lindsay, James Herbert. Lonergan, Gerald Joseph.	Ville Montcalme,	 	Mar. 31, '82	Dept. of Interior. Q. L. S. O. L. S. Q.L.S., Insp. of Surveys.
Loucks, Roy Wm. Egbert Lumsden, Hugh David MacLennan, Alexander L MacPherson, Charles Wilfrid	Saskatoon, Sask Ottawa, Ont Toronto, Ont Dawson, Y. T	Oct. 31, '84 Sept. 7, '44 May 10, '78 Sept. 6, '71	Mar. 1, '12 April 14, 72 Feb. 23, '05 Mar. 7, '00	Dept. of Interior. O. L. S. O. L. S.

APPENDIX No. 10.—Continued.

List of Dominion Land Surveyors who have been supplied with Standard Measures—Continued.

		,		
Name.	Address.	Date of Birth.	Date of Appointment or of Commission.	Remarks.
Magrath, Charles Alexander	Ottawa, Ont	April 22, '60	Nov. 16, '81	B. A. Sc., O.L.S., B.C.L. S., D. T. S., Member International Water- ways Commission.
Martindale. Ernest Smith				-
Mitchell, Benjamin Foster Moberly, Harford Kenneth Molloy, John Montgomery, Royal Harp Moore, Herbert Harrison Morrier, Joseph Eldedge	Winnipeg, Man Prince Albert, Sask.	Jan. 13, '40 May 20, '82	April 21, '03 April 14, '72 Feb. 23, '05	M. L. S. O. L. S.
McArthur, James Joseph	Ottawa, Ont	lMav 9. '56	April 17. '79	Boundary Survey Dent.
McCaw, Robert Daniel. McColl, Gilbert Beebe. McColl, Samuel Ebenezer. McDiarmid, Stuart Stanley. McEwen, Duncan Findlay. McFadden, Moses. McFarlane, Walter Graham. McFarlane, John Baird. McFee, Angus. McGeorge, William Graham. McGrandle, Hugh. McKenzie, John.	Vancouver, B. C Edmonton, Alta Vancouver, B. C Toronto, Ont Toronto, Ont	Aug. 4, '81 Aug. 7, '73 Aug. 26, '26 Sept. 28, '75 Feb. 25, '79	Feb. 23, '05 May 18, '11 April 14, '72 May 19, '05 June 3, '08	B.C.L.S. O.L.S., M.L.S.
McGeorge, William Graham McGrandle, Hugh McKenzie, John	Chatham, Ont Wetaskiwin, Alta New Westminster, B. C Ottawa, Ont	Mar. 22, '87 Mar. 12, '57 Oct. 31, '47	April 19, 79 Mar. 21, '10 Mar. 30, '83 Nov. 18, '87	O.L.S.
McLean, James Keachie McMaster, William Angus Alexander McMillan, George McNaughton, Alexander L McPherson, Archibald John	Palmerston, Ont Finch, Ont	Feb. 1, '85 Dec. 9, '69 Sept. 30, '81	July 6, '10 Feb. 22, '06 Feb. 23 '05	
McPherson, Archibald John. McPhillips, George. McPhillips, Robert Charles McVittie, Archibald W. Nash, Thomas Sanford.			1	O.L.S., M.L.S. B.C.L.S. Topographical Surveys Branch, Dept. of Inter.
Neville, Everett A	Ruthven, Ont Ottawa, Ont Ottawa, Ont Hamilton, Ont Dorchester, N.B	Jan. 8, '87 April 7, '46 Oct 17, '56 Mar. 6, '88	May 18, '11 April 14, '72 Feb. 19, '95 April 1, '82 Mar. 7, '12	0.11.5.
Parsons, Jonnstone Lindsay K Patrick, Allan Poyntz Patten, Thaddeus James Pearce, William. Pearce, Seabury Kains Pequegnat, Marcel.			Nov. 19, '77 Mar. 29, '83 May 10, '80 Mar. 9, '11 June 6, '10	O.L.S. B.C.L.S., D.T.S. O.L.S. O.L.S., B.C.L.S.
Peters, Frederic Hatheway Phillips, Edward Horace. Phillips, Harold Geoffrey Pierce, John Wesley Plunkett, Thomas Hartley.	Saskatoon, Sask Saskatoon, Sask Ottawa, Ont	Sept. 3, 87	Mar. 4, '10 Feb. 24, '02 April 23, '10 Dec. 24, '09 Mar. 12, '08	Commiss'er of Irrigation.
Ponton, Archibald William Powell, William Henry Proudfoot, Hume Blake Purser, Ralph Clinton	Vancouver, B.C Saskatoon, Sask	Jan. 25, '59 Dec. 22, '84 June 23, '58	May 18, '81 Feb. 22, '11 Mar. 28, '82	O.L.S.

APPENDIX No. 10.—Continued.

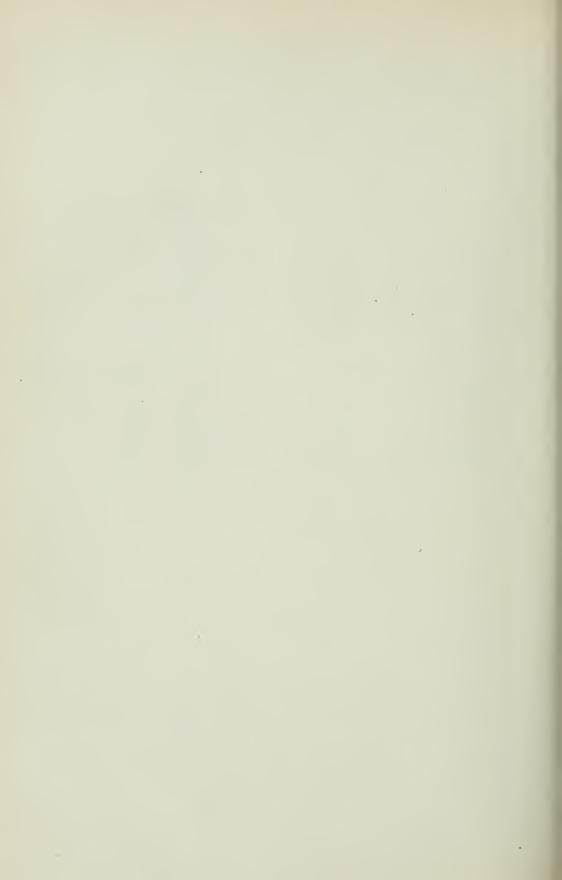
List of Dominion Land Surveyors who have been supplied with Standard Measures—Continued.

Name.	Address.	Date of Birth.	Date of Appointment or of Commission.	Remarks.
Rainboth, Edward Joseph Ransom, John Thomas Reilly, William Robinson Richard, Joseph Francois	Ottawa, Ont	Aug. 24, '88 Aug. 10, '57	May 19, '81 Jan. 14, '11 Nov. 17, '81	Q.L.S., O.L.S. O.L.S., M.L.S.
Richard, Joseph Francois Rinfret, Claude Rinfret, Raoul. Ritchie, Joseph Frederick Robertson, Henry H. Roberts, Sydney Archibald. Roberts, Vaughan Maurice Robinson, Ernest Walter P. Robinson, Franklin Joseph	catière, P.Q. Montreal, P.Q. Montreal, P.Q. Prince Rupert, B.C N. Timiskaming, P.Q. Victoria, B.C. Goderich, Ont	Jan. 5, '86 July 16, '56 May 23, '63 Sept. 13, '47 April 10, '48 Mar. 22, '64	May 13, '82 Mar. 20, '08 Feb. 20, '00 Jan. 7, '89 April 14, '72 May 16, '85 May 17, '86	Q.L.S. Q.L.S. B.C.L.S. Q.L.S. B.C.L.S.
Rolfson, Orville Rombough, Marshall Bedwell Rorke, Louis Valentine	Toronto, Ont	Feb. — '65	Aug. 13, '91	vevs for Ontario.
Ross, George	Welland, Ont Kamloops, B.C Haileybury, Ont	June 12, '53 Jan. 9, '61 Jan. 20, '78	Nov. 21, '82 Feb. 12, '91 Feb. 15, '11	O.L.S.
Rostly, Herbert Thomas Routly, Herbert Thomas Roy, George Peter Roy, Joseph George Emile. Saint Cyr, Jean Baptiste. Saint Cyr, Arthur. Saunders, Bryce Johnston	Quebec, P.Q	Mar. 14, '86 Dec. 17, '66 Nov. — '60	May 25, '10 Feb. 17, '87 Feb. 17, '87	Q.L.S.
Sewell, Henry DeQuincy Seymour, Horace Llewellyn Shaw, Charles Aeneas Shayley, Joseph Department	Toronto, Ont Edmonton, Alta Greenwood, B.C	April 18, '48 June 11, '82 Nov. 16, '53 Sept. 13, '79	May 16, '85 Feb. 22, '06 May 10, '80	O.L.S. O.L.S. O.L.S., B.C.L.S.
Seager, Edmund. Sewell, Henry DeQuincy. Seymour, Horace Llewellyn. Shaw, Charles Aeneas. Shepley, Joseph Drummond. Smith, Charles Campbell. Smith, Donald Alpine. Smith, James Herbert. Soars, Henry Martin Robinson Speight, Thomas Bailey. Starkey, Samuel M. Steele, Ira John. Stewart, Elihu. Stewart, Lionel Douglas N. Stewart, Lionel Douglas N. Stewart, Louis Beaufort.	Ottawa, Ont	Jan. 1, '73 Sept. 22, '80 Nov. 9, '76	Feb. 22, '06 April 21, '10 Feb. 23, '05	O.L.S.
Soars, Henry Martin Robinson Speight, Thomas Bailey Starkey, Samuel M Steele Ira John	Toronto, Ont	April 22, 777 Feb. 8, '59 Sept. 4, '37 April 6, '81	Nov. 2, '08 Nov. 16, '82 April 14, '72 April 16, '08	O.L.S.
Stewart, Elihu	Collingwood, Ont Collingwood, Ont Saskatoon, Sask	Nov. 17, '44 Nov. 26, '84	April 14, '72 Jan. 27, '10 June 6, '07	O L.S.
				Geodesy, University of
Stewart, Alexander George Stewart, George Alexander Stock, James Joseph	Ottawa, Ont.	Aug. 16, '87	Mar. 14, '10 April 14, '72 Mar. 2, '10	O.L.S.
Stewart, Alexander George. Stewart, George Alexander. Stock, James Joseph Street, Paul Bishop. Stuart, Alexander Graham. Summers, Gordon Foster. Taggart, Charles Henry Talbot, Albert Charles. Taylor Alexander	Buckingham, P.Q Haileybury, Ont	July 16, '89	May 9, '11 Oct. 20, '10 May 9, '11	
Taylor Alexander Taylor William Emerson	Portage la Prairie, Man	April 5, '56 Aug. 6, '75 Aug. 3. '81	May 13, '80 June 9, '04 Dec. 16, '10	M.L.S.
Taylor Alexander Taylor, William Emerson Teasdale, Charles Montgomery Thompson, William Thomas. Tipper, George Adrian Tracy, Thomas Henry Tremblay, Alfred Joseph	Concord, Ont Grenfell, Sask Brantford, Ont	Oct. 18, '79 Nov. 1, '53 July 25, '86	Mar. 9, '06 Nov. 19, '77 May 18, '11	D.T.S.
Tremblay, Alfred Joseph	Les Eboulements, P.Q.	June 25, 45	Feb. 18, '90	0.11.0., 10.0.11.0.

APPENDIX No. 10.—Concluded.

List of Dominion Land Surveyors who have been supplied with Standard Measures—Concluded.

Name.	Address.	Date of birth.	Date of Appointment or of Commission.	Remarks.
Tremblay, Albert Jacques Turnbull, Thomas Tyrrell, James William. Underwood, Joseph Edwin. Vaughan, Josephus Wyatt Vicars, John Richard Odlum. Waddell, William Henry Waldron, John Walker, Claude Melville Wallace, James Nevin Warren, James. Watt, George Herbert Weekes, Abel Seneca. Weekes, Abel Seneca. Weekes, Melville Bell. Wheeler, Arthur Oliver White-Fraser, George W. R. M. Wiggins, Thomas Henry. Wilkins, Frederick W. B. Wilkinson, William Downing Williams, Guy Lorne. Wilson, Reginald Palliser. Woods, Joseph Edward. Young, Walter Beatty. Young, William Howard	Winnipeg, Man. Hamilton, Ont. Saskatoon, Sask. Vancouver, B. C. Kamloops, B. C. Edmonton, Alta Moosejaw, Sask. Guelph, Ont. Calgary, Alta Walkerten, Ont. Ottawa, Ont. Edmonton, Alta R. gina, Sask. Sidney, B. C. Ottawa, Ont. Saskatoon, Sask. Norwood, Ont. Not known Enderby, B. C. Winnipeg, Man. Pincher Creek, Alta. Winnipeg, Man.	May 26, 57 May 10, 63 Nov. 3, 82 Oct. 17, '45 April 16, 55 Mar. 23, '83 Aug. 1, '72 Oct. 16, '84 Aug. 21, '70 Nov. 7, '37 Feb. 5, '76 Feb. 17, '66 Nov. 28, '74 May 1, '60 Aug. 24, '63 June 27, '54 Mar. 3, '79 July 9, '72 July 9, '72 July 6, '80	Mar. 29, 82 Feb. 16, 82 May 18, '11 June 11, '78 May 17, '86 Mar. 25, '07 Mar. 11, '11 Feb. 20, '00 April 14, '72 Feb. 21, '92 Feb. 11, '92 Feb. 18, '03 Nov. 21, '82 Feb. 18, '93 May 18, '81 Feb. 22, '93 June 24, '08 Jan. 26, '11 Nov. 14, '85	O.L.S. O.L.S. O.L.S. O.L.S. O.L.S. O.L.S. O.L.S. O.L.S. O.L.S. O.L.S. D.T.S. O.L.S. O.L.S. O.L.S. D.T.S. O.L.S. O.L.S. O.L.S. O.L.S. O.L.S. O.L.S.



PARTAV DOMINION PARKS



DOMINION PARKS

REPORT OF THE COMMISSIONER OF DOMINION PARKS.

DEPARTMENT OF THE INTERIOR,

DOMINION PARKS BRANCH,

OTTAWA, July 4, 1912.

W. W. Cory, Esq., C.M.G., Deputy Minister of the Interior, Ottawa.

Sir,—I beg to submit a report for the fiscal year 1911-12, with respect to Dominion Parks.

During the year a change was made in the matter of parks administration. Prior thereto there was no distinctive parks administration. In addition to his many other duties the Superintendent of Forestry had to supervise the management of all parks matters. A recognition of the potentialities in connection with National Parks and the essential differences in the administrative requirements concerning National Parks and National Forest Reserves led to the detachment of the parks from the Forestry Branch and to the organization of a separate branch charged with the administration of parks alone.

It is interesting to note that the United States is following Canada's example in the matter of specializing in regard to National Parks administration. An agitation for the establishment of a Parks Bureau, at Washington, culminated in the following message to Congress from President Taft, on February 2, 1912:—

I earnestly recommend the establishment of a Bureau of National Parks. Such legislation is essential to the proper management of those wondrous manifestations of nature, so startling and so beautiful that everyone recognizes the obligations of the Government to preserve them for the edification and recreation of the people. Every consideration of patriotism and the love of beauty and of nature and of art require us to expend money enough to bring all these natural wonders within easy reach of our people. The first step in that direction is the establishment of a bureau which shall take upon itself the burden of supervising the parks and of making recommendations as to the best method of improving their accessibility and usefulness.

The re-organization of Dominion Parks administration followed the enactment in May, 1911, of the Dominion Forest Reserves and Parks Act. This Act repealed previous parks legislation and provided that the Governor General in Council might set aside suitable areas to be maintained and made use of 'as public parks and pleasure grounds for the benefit, advantage and enjoyment of the people of Canada.'

CHANGED AREAS.

When the parks were re-arranged under the new Act some changes were made in the boundaries. The areas now administered by the Parks Branch are:—

Park.	Area.	Former Area.
Rocky Mountain. Yoho. Glacier. Jasper. Waterton Lake. Buffalo Elk Island.	Sq. Miles. 1,800 560 468 1,000 13.5 162 16	Sq. Miles. 4,500 828 576 5,000 54 162 16

It is understood that the principle on which the reductions were made was that the parks should not be of any larger area than the Department was in a position to reasonably improve and make available for the public. Since the change protests have been received against the reduction and the question is now under consideration as to whether the old areas should be restored or extensions of some kind made in the boundaries. The first protests arose in August when announcements were made in the newspapers that large numbers of white and Indian hunters proposed to take advantage of the removal of parks supervision from important game-breeding grounds to go into these areas and slaughter game by the wholesale. The branch took prompt action to prevent the proposed slaughter, however, with results that were eminently satisfactory.

PARKS ORGANIZATION.

The parks organization now is as follows:-

Head Office Branch at Ottawa in charge of an officer called the Commissioner of Dominion Parks.

Outside service.—A Chief Superintendent, located at Edmonton, charged with the supervision of all the parks' outside officers; and a separate organization in each park under a superintendent charged with the management of all matters concerning the park under his charge.

The re-organization involved the changing of the title of Mr. Howard Douglas from Commissioner to that of Chief Superintendent. The change in no way altered the duties performed by him, the new title being given because it was considered it more accurately described the duties of the office, viz.: the supervision of the work of the individual park superintendents.

ADVANTAGE OF NATIONAL PARKS.

In the words of the Parks Act the parks are 'for the benefit, advantage and enjoyment of the people of Canada.' To provide for a maximum development on these lines is the object towards which the parks organization is working.

The people of Canada primarily secure 'benefit, advantage and enjoyment' from their national parks, through the unequalled means of recreation that they provide. National parks are to the nation what local parks and playgrounds are to a city. Everything that a city park can do as a quick aid to the people, the national parks can do more thoroughly and on a larger scale. National parks are the natural result of a recognition that man requires the pure, wholesome, healthful recreation of the great out-of-doors. They provide for such on a scale commensurate with the needs of the people of Canada—present and future.

COMMERCIAL SIDE.

There is another way in which national parks prove advantageous to the people of Canada. They attract an enormous tourist traffic and tourist traffic is one of the largest and most satisfactory means of revenue a nation can have. The tourist leaves large sums of money in the country he visits, but takes away with him in return for it nothing that makes the nation poorer. He goes away with probably improved health, certainly with a recollection of enjoyment of unequalled wonders of mountain, forest, stream and sky, of vitalizing ozone and stimulating companionship with nature but of the natural wealth of the country he takes nothing.

The commercial potentialities of tourist traffic are almost startling. In 1907, an article, 'The Toll of the Tourist,' was published in the American Review of Reviews. This article gave the annual income of France from tourists as \$500,000,000, the tourist toll of Italy as \$100,000,000. It placed the expenditure of American tourists in England as \$25,000,000. During the past five years there has been a constantly increasing tourist traffic, so the above figures are probably much lower than the amounts now spent. Other figures which have been secured indicate that Switzerland's annual revenue from tourists last year was \$150,000,000.

In the United States it is well established that Florida gets a larger revenue from her tourists than from all the products of her soil. Hundreds of thousands annually visit Niagara Falls. Tourists spend six or seven million dollars each year in the Adirondacks and at least \$5.000,000 annually in the pine woods of Maine.

The President of the American Civic Federation in a speech in September last calculated that American tourists spent abroad in 1910 the enormous sum of \$350,000,000. On every hand there is evidence of a powerful and prevailing desire on the part of the people to see and commune with the beauties of nature, their willingness to pay for it and the pecuniary benefit of the locality concerned. Extraordinary scenery is one of the greatest assets a country can have. Canada has twenty Switzerlands in one. Maine's Adirondacks cannot be compared to Canada's national parks. There is now a powerful movement in the United States to 'See America First.' With the natural advantages Canada possesses in her national parks there appears to be no reason why she should not get a good share of the hundreds of millions of dollars that tourists annually spend.

The Parks Branch has to develop the national parks with the object of making their wonders and beauties available and accessible for the people of Canada. Every facility provided in that connection naturally is of equal value to the foreign tourist. Therefore the more the Branch can do in the parks to serve the recreation requirements of Canadians, the more it does at the same time to attract to Canada a share of the hundreds of millions that the public annually spends on recreation.

PARKS POLICY.

The policy upon which the Branch is carrying on its development work is based on the belief that the majority of the people, Canadians or others, who visit the parks are used to some degree of comfort and that no matter how fond they may be of nature they will not take a park tour unless assured of some degree of comfort, convenience and safety. Americans and Canadians in thousands go to the Alps because they believe they can see them in comfort and yet they have never seen the much greater attractions of the Rockies.

To meet these conditions the Parks Branch policy necessarily relates to the quality of the service of whatever kind, rendered by those dealing with the tourist: character of accommodation; avoidance of congestion; protection against extortion; provision of minor attractions to fill in between the nature trips; the construction and maintenance of roads and trails of first-class character in order that the various attractions

may be comfortably and safely reached; special care in the matter of the dust nuisance and the rough road nuisance; supervision over sanitary conditions; water supply, horses and vehicles, guides, drivers, charges and rates; furnishing of full and reliable information; and, generally, in not only reducing discomforts to a minimum but in so administering matters that the tourist shall be as satisfied with the treatment received while in the parks as he inevitably must be with the science wonders he has viewed. The efforts of the Branch are being directed towards an organization dealing effectively with respect to details concerning all these various matters.

DEVELOPMENT WORK.

Development work in the parks relates chiefly to roads, trails, streets, sewers, water works and bridges. On this account engineering supervision has been provided. There is an engineer on the Head Office staff and also an engineer in the field. The plan adopted in this connection, in relation to road construction, is that the engineer on the ground shall by careful survey work locate the route with a view to getting the best scenic results, safety, permanency and case of maintenance. He must go fully into the matter of grade, drainage, curves, foundations and materials. He also has carefully to estimate costs. He reports to head office, where his details are examined by another engineer. Repairs of any extensive character are dealt with in the same way. In this matter of roads it is hoped in this way to make them all permanent, smooth, dustless, mudless, safe and altogether attractive.

The general policy regarding other construction matters is similar to that in relation to roads.

WORK OF 1912-13.

For the year 1912-13 it is proposed to confine attention in the matter of roads and trails almost exclusively to perfecting as far as possible those already constructed. Very little new work is contemplated. In the matter of new work it is felt that best results can be obtained by working out a comprehensive plan of development covering each park in its entirety and then progressively carrying out such plan; each unit of work eventually forming a link in a comprehensive whole.

With a view to securing roads of the best possible character the department has purchased an eight-ton steam roller, a rock crusher, and a concrete mixer. Moreover, a reservation of tar-sand (asphalt) area in the Fort McMurray country has been made for parks purposes. It is expected a railway will be completed to Fort McMurray within two or three years and that the department will then be able to asphalt its park roads at a comparatively small cost.

CONSERVATION WORK.

Of equal importance with construction and development work in the parks is the work of conservation. This applies to the natural beauties and scenie wonders, to the forests, animal, fish and bird life. This work is carried on by a staff of game wardens who patrol the parks from end to end. Fire is, of course, the most serious menace. Very good results have been obtained from the system of fire patrol and protection in operation for several years. However, the practice of the branch is to keep in touch with the forestry branch experts for advice and suggestion and also to co-operate with the forestry officials with a view to getting the best possible results. Plans in regard to fire protection are being developed not only on the lines of patrolling, but also in the matter of a comprehensive trail system, telephone lines, signal stations, depots with stores for emergencies, organization of men, pack horses and equipment available at all times for emergencies; construction of fire guards; disposal and removal of dead timber.

FINANCIAL ADMINISTRATION.

Careful attention has been given to organization in regard to the financial end of the work. The object has been to provide a system whereby a maximum of value and results is secured with respect to every expenditure made; and whereby revenue potentialities are developed with a view to eventually making the parks self-sustaining.

In the matter of expenditure the system developed controls first with regard to the initiation of work and then provides by a variety of inspections and reports from different officers a close check upon the work, enabling head office when approving of the accounts for payment to calculate whether the amount of work done represents an adequate result for the money concerned. In the matter of the purchase of ordinary supplies the system adopted provides that no accounts can be paid unless accompanied by a requisition bearing the signature of the foreman or other employe requiring the supplies, the approval of the superintendent of the park and the receipt of the person to whom delivery was made. A store organization has also been provided for under which, by means of requisitions and receipts, individual responsibility is established with respect to every tool, implement or other article owned by the department. Finally all accounts of whatever nature are audited first in the chief superintendent's office and again by the accountant of the branch.

REVENUE.

The revenue collected in the various parks in 1911-12 was as follows:—

Collected by	Parks Branch		
٠,	Timber and Grazing Branch		
		\$93,697	99

In some cases these dues are on berths partly within the parks and partly outside. There is no way by which the part actually collected within the parks can be fixed.

A new source of revenue was a royalty on ice cut within the park during the past winter. The rate was two cents per ton and the revenue totalled \$430.62.

A vigorous policy of collection of arrears of lot rentals in the parks was inaugurated last fall. As a result nearly \$900 arrears have been collected out of a total of \$1,075 dealt with. In addition, seven cases of arrears had to be submitted to the Department of Justice, totalling \$407. That department has secured the cancellation of the leases concerned and is now suing for the recovery of the money.

Careful investigation is being carried on with regard to sewer, water and other rates to ascertain that all the revenue due the department is collected. Moreover, it is expected a substantial revenue may be secured by the disposal of old buffalo in the herd at the park at Wainwright. Natural conditions require that a certain number of old buffalo bulls should be disposed of each year. As soon as a buffalo bull becomes aged and somewhat enfeebled the younger bulls drive him out of the herd and eventually kill him. When they do kill him they so lacerate the remains that head, robe and hide are destroyed. A prime bull will yield in the way of revenue approximately:

Head (mounted at cost of \$159)	\$500 to \$800.
Robe	100
Meat	

There are a large number of aged bulls in the government herd and a substantial revenue should therefore be derived therefrom. Attention is also being given to the question of revenue from wild fur-bearing animals within the parks. Ontario now

derives a large revenue from its wild animals in Algonquin Park and it is felt that a similar result may be obtained in the Dominion parks.

Taking the parks as a whole there is every reason to look forward to a return in direct revenue equivalent to a good rate of interest on the capital spent upon the parks; and, indeed, the capital expenditure may eventually be found to be equalled by the direct revenue.

The details of the work accomplished during the year are dealt with in the reports of the Chief Superintendent and of the Superintendents of the various parks which follow. There are a number of matters of general interest which, however, call for special attention.

SCHOOL LANDS IN PARKS.

During the year the question arose as to whether the school lands provisions of the Dominion Lands Act applied to the parks. The matter was submitted to the Department of Justice and an opinion received from it that the provisions in question do not apply.

FIDDLE CREEK DRIVE.

A contour survey of the district between Athabaska river and Fiddle Creek hot springs, Jasper park, was commenced last summer and will be completed during 1912. This is being made with a view to securing the best possible location for a carriage road to the hot springs. The country is a most rugged and difficult one and it is expected that when the road is completed it will provide one of the most spectacular scenic drives on the continent.

AUTOMOBILE ROAD.

Work was commenced in the early spring on a bridge across the Bow river, Rocky Mountains Park, at Castle and on a roadway from that point to the British Columbia boundary in Vermilion Pass. This road is a link in an automobile road scheme in which the Canadian Pacific Railway, the Government of British Columbia and the Dominion Government are jointly interested. The scheme involves the completion of an automobile road from Calgary to Vancouver. The Dominion is building that portion of the roads through the parks and the railway company and the province are responsible for the balance. The Dominion has already built sufficient roadway to enable automobiles to travel from Calgary to Banff, and several miles beyond. Work is to be proceeded with during 1912 from the present terminus to Castle. This will connect with the other portion of parks road from Castle to Vermilion and there join the British Columbia-Canadian Pacific Railway portion of the road. From the Vermilion Pass the road is located via the Windermere lakes to Wardner, on the Crowsnest line. From this point the road, by linking up with existing roads, will reach Vancouver. Going eastward it will proceed via the Crowsnest to Lethbridge. Thus in a short time, not only will it be possible to go to Calgary and other points east to Vancouver by auto but there will also be provided a round trip-Calgary to Banff, to Castle, to Vermilion, to Wardner, to Lethbridge, to Calgary-of 500 miles during which the autoist will at all times be either in the Rockies or in full sight of them.

POWER DEVELOPMENT.

During the year permission was given the Calgary Power Company to build a conservation dam at the outlet of Lake Minnewanka, Rocky Mountains Park. Elaborate provisions were incorporated in the agreement adequately to protect parks interests. One provision required the removal close to the ground and the destruc-

tion of all timber along the lake within the area to be flooded and for a distance of 10 feet above thereof. The consequence has been the removal of large quantities of dead timber which constituted an eyesore and the substitution of trim, clean cut shores. However, perhaps the most important feature of the arrangement was a provision that the company must make provision in the dam by which the department may carry out a power development of its own. An abundance of electric lighting for Banff, especially during the tourist season, is of the utmost importance, and advantage was taken of the conservation scheme to provide for a development which will give the Department 800 to 1,000 horse-power.

NEW BATH HOUSE.

One of the outstanding attractions at Banff is the Hot Springs. The present facilities for bathing both at the Upper Hot Springs and at the Cave and Basin have become quite inadequate. The revenue from the Springs last year was \$4,508.75 and it would have been much larger had the Department been able to accommodate all who wished to use the baths. During the summer Mr. A. Van Damme, the foremost bath house architect in the United States, was authorized to prepare plans for two new bath houses. Mr. Van Damme spent some time at Banff and in September submitted preliminary plans. It was too late in the year to proceed with any building operations but an appropriation has been made for 1912-13 for bath house construction and it is expected that while the plans before the Department may be too elaborate for present purposes, at least one new bath house will be built during the fiscal year.

At Buffalo Park, Wainwright, the Department has purchased an equipment of horses and implements with a view to doing its own work in the matter of ploughing fire guards and providing hay for the buffalo. The cost of this work during 1911-12 was about \$3,000 and higher in other years. The cost of the outfit necessary to undertake it ourselves was approximately \$5,000. In the past great difficulty was always experienced in hiring teams and otherwise arranging for this important work. All this trouble will now be obviated and it is calculated that in a few years the Department will have saved the cost of the equipment purchased.

I have the honour to be, sir,

Your obedient servant.

J. B. HARKIN.

Commissioner of Dominion Parks.

No. 1.

REPORT OF THE CHIEF SUPERINTENDENT OF DOMINION PARKS.

Edmonton, Alberta, April 1, 1912.

The Commissioner of Dominion Parks, Ottawa, Ont.

Sir,—I have the honour to submit herewith my fourth annual report as Chief Superintendent of Dominion Parks for the fiscal year ending March 31, 1912.

As you will observe by the report the predictions made by me, a few years ago, in regard to the Mountain Parks have been more than realized and their development has already exceeded the most sanguine expectations.

It is with sincere pleasure that I am able to report that judging from past development, and present indications, it is a difficult matter to estimate the limit of the usefulness of these Mountain Parks as unique pleasure and health resorts, not only for the Dominion, but for visitors and tourists from almost every part of the world.

For convenience I have arranged this report under the following heads:-

- 1. Report of Chief Superintendent of Dominion Parks.
- 2. Report of Superintendent of Rocky Mountains Park.
- 2. (a). Report of the Curator of Banff Museum.
- 2. (b) Analysis of Nationalities of visitors to the hotels.
- 2. (c) Report of the Alpine Club.
- 2. (d) Statistical Summary re roads, trails, improvements, &c.
- 3. Report of the Superintendent of Yoho and Glacier Parks.
- 4. Report of Superintendent of Buffalo Park.
- 5. Report of Superintendent of Elk Island Park.
- 6. Report of Superintendent of Waterton Lake Park.

As Jasper Park was administered through this office during the past fiscal year the details of the work done there will be found in my own report.

In presenting my report for the year ending March 31, 1912, I have attached reports from the superintendents of the different parks in control of this branch of the Department of the Interior. These reports give in detail an account of the work earried on in, and the operation of parks under their charge.

ROCKY MOUNTAINS PARK.

The increase of popularity of this now famous resort may be judged by the comparison of the number of people who have visited the park each year for the last ten years.

Year.									No.	of Visitors.
1902	 	 	 	 	 	 	 			8,516
										10,696
										11,752
										17,605
										30,136

	No. of Visitors.
1907 (9 months)	28,735
1908	32,209
1909	. 39,780
1910	56,462
1911	63,494
1912	

This steady increase in travel has resulted in an equal increase in trade for all classes of business, as well as a corresponding increase in revenue in the park.

It will be noticed from the report of the Superintendent of Rocky Mountains Park at Banff that the revenue of the park, from all sources, with the exception of the royalty on coal, shows a very steady and satisfactory increase. This was due to the coal strike in Southern Alberta, which lasted for over nine mouths. Even with this loss to revenue, it will be noted that the revenue from this park almost equals the total appropriations made for maintenance.

I would suggest that a capital account be established as soon as possible. If this were done it would be found that the revenue, exclusive of the amount paid for permanent structures, such as roads, bridges and buildings, would be almost double the amount required for salaries, repairs and maintenance.

One thing which prevents an even better showing regarding finances is the fact that at one time a difficulty was experienced in obtaining labourers, due to private interests in the district, which necessitated an increase in the wages usually paid. However, the work which has been performed has been very satisfactory, and I think the expenditure of the few extra dollars has worked out to a good end.

In the matter of fire protection for the forests and game, excellent results have been obtained from the fire laws governing that phase of the work of conservation, and residents in the forest reserves are taking as keen an interest in protection as are those paid to look after the work. There is no doubt that the staff of fire guardians is the most important we have. To them is attached a great responsibility in furthering the ends of the Government of the Dominion to maintain and perpetuate the beauties of mother nature, which were given us with a bountiful hand.

As the years roll around one connected with park management becomes more and more convinced in favour of good organization in forest work. Since my last report was issued the western newspapers, and a few eastern ones have sent their representatives through several of the parks, and through their efforts the importance of such work is being told the people, comparatively few of whom were previously aware of its great possibilities.

The majority of forest fires throughout the mountains are caused by sparks from engines, which fires I am certain will be greatly diminished by the new legislation which requires that all engines be equipped with screens over their exhausts. I also notice that starting July 1, this year all engines between Field and Vancouver will burn oil as a fuel. This will add another great asset to our forest and game preserves, and reduce the fire danger from that source to an absolute minimum. I cannot urge too strongly upon the Department the need of seeing that every railroad lives up to these new requirements in every particular.

GAME.

Two years ago, in my annual report, I mentioned the fact that parties travelling through the Rocky Mountains Park were able occasionally to see Rocky Mountain goats near their line of travel. I am pleased to report this year that, owing to our system of game protection, this class of animal is constantly becoming more tame, and along the Banff-Laggan road one can see a flock of more than twenty-five feeding

along the road any day. Indeed, so tame are they becoming that those to whom they are accustomed are able to approach them almost as closely as a farmer can to his ordinary sheep. As a matter of fact tourists have been able to make excellent photographs of the flock.

The game protection staff now consists of five permanent wardens, who patrol all portions of the park on regular trails with small cabins constructed at different points where they can remain over night, thus avoiding the necessity of packing tents with them. Each is furnished with a pony and saddle, besides a pack horse to carry supplies, so that they are able to remain out several days at a time, or as long as their patrol duty in any particular territory may require. By this means any killing of game by Indians or tourists that might have prevailed in previous years, which was by no means a rare occurrence, especially in outlying portions, has been entirely eliminated, so far as any of the wardens or superintendents have been able to ascertain.

In addition to this the regulation prohibiting the carrying of fire-arms in the different parks, unless they are sealed, has, I think, removed a great source of temptation, which was, perhaps, responsible for infractions of the game laws. I am firmly convinced that the sense of the wild animals in the parks has told them that they are protected, and to me my contention is proven by the fact that all game is now less timid of the approach of men and less fearful of natural enemies in the form of dogs and guns.

Coyotes, which have been so destructive to all small game, especially while they are having their young, besides being a menance to enclosed animals, have had their numbers very much lessened during the past year, forty-five having been destroyed in Banff alone, while almost an equal number were killed at Buffalo park. All game wardens have been equipped with rifles and ammunition, as well as field glasses, so that now they are in a much better position to destroy any carnivorous animals they may come across, such as wolves, lynx, mountain lions and coyotes. Little trouble has been met with on account of bears, and only occasionally have we been called upon to destroy an odd one which came into the city limits, thus frightening tourists from going into the hills.

A particularly pleasing paragraph of this report is the fact that we have been successful in capturing a mountain sheep (ewe). After the capture of two rams two years ago, I offered two reliable trappers in Banff, \$50 if they would deliver an adult female mountain sheep at Banff. However, one of our own men while on duty, was fortunate enough with the help of other park men, to make the capture. At a point four miles from Banff there is a sulphur spring which is a tavourite watering place for these animals. Here one of the foremen, W. H. Green, met a ewe in the middle of the road, and, after frightening it into some deep mud, jumped in himself and succeeded in throwing it on its back and tying it so that he could bring the animal to town.

At the end of March there were the following large animals in the enclosures at Banff: Buffalo, 25; moose, 8; elk, 17; mule deer, 8; white tail deer, 3; Persian sheep, 3; Angora goats, 9; Rocky Mountain sheep, 3; Rocky Mountain goat, 1; four horned sheep, 3; six legged sheep, 1.

FISH AND FISH HATCHERY.

Since my last report fishing in the park has attracted a greatly increased number of people to enjoy the sport. I must, however, draw your attention to the fact that the big catches which were common in former years are becoming almost unknown. The only conclusion to arrive at, more especially with regard to the more accessible lakes and streams, is that they are rapidly being fished out, and that it will be necessary in the near future, either to re-stock many of them, or to curtail, or even abolish the open season for some time.

In connection with the above, I would strongly recommend the establishment of a properly equipped fish hatchery at some of the many suitable locations to be found within the limits of the park. The fishery commissioners, when they were through here last year, stated that they would strongly recommend this hatchery, but as yet I have heard nothing further of it.

The cost of a building in connection with a moderate sized hatchery would not be very great, while the cost of maintenance is comparatively small, one or two men being all that would be required to oversee the work. In this way millions of small fish could be transplanted into the various streams, not only in the park, but in the provinces surrounding it, thus adding one more to the many attractions to be found.

ROADS AND BRIDGES.

It will, of course, be necessary during 1912 to give considerable attention to all the completed roads in the park, of which there are 96.5 miles, which you will find detailed in the superintendent's report. The Banff-Laggan coach road was further added to by the completion of about three miles. A cut was made through the green timber and the completion of the work will be made during the coming year, as an appropriation for that purpose has been given. The green timber which was cut was taken to the sawmill, and has supplied 35,000 feet of excellent bridge timber. Roads to the different points of interest about the town have been thoroughly repaired, while all town streets are in excellent condition.

The Lake Louise to Lake Moraine road has been completed after much laborious work through a rock cut. Owing to heavy traffic, however, it is extremely difficult to keep this road in condition, as ruts are cut in it, which fill up with water and eventually become much larger ruts. The total amount expended on this road during the year was \$1,645.67.

As a matter of fact, all park roads have been built of material found in the immediate vicinity, which consists of gravel and clay. In the past this has answered very well for the wear given it by light conveyances. I notice, however, that during the past few years, when heavy tallyhos have been used, this material will not stand the heavy traffic. The main road from the Canadian Pacific railway station to the various hotels, owing to the large amount of construction work called for in enlarging the buildings, and the consequent amount of heavy teaming, has been almost totally destroyed. To meet this contingency it has been found necessary to arrange to construct solid macadam roads, and for this purpose a large rock crusher and steam roller have been ordered. It is expected they will be on hand in May, when a thorough system of macadam roads throughout the entire park will be built. The Canadian Pacific Railway Company is adding an extension to its hotel, spending about half a million dollars on the Banff Springs hotel and about \$425,000 at Lake Louise, and the cement, iron and other materials were teamed over the roads in the early spring, destroying the crown which for years had withstood the light tourist traffic.

Outside the Banff-Windermere road, the main work this coming year will be wholly repairs, the intention being to work on all present roads until they are in a first-class condition, before starting on any of the proposed new ones.

During the past year about 100 miles of new trails were constructed in the Rocky Mountains Park, at a cost of slightly over \$3,000. I would strongly recommend that this class of work be carried on upon a liberal scale. Trails serve a double purpose, not only making it possible for tourists to wander or ride as far as they like, but are of great assistance to the fire and game wardens in reaching remote places in the mountains, which have been hitherto practically inaccessible. A thorough network of these trails, which can be built at a cost of only about \$30 a mile, would prove

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invaluable were a fire to break out, as the fire could then be attacked from all vital points and very easily extinguished.

TELEPHONES.

In connection with the telephone system at Banff, I would strongly recommend that an underground system of wiring be inaugurated as soon as possible, as with the growth of the town and its possibilities, overhead wiring is not adding to its attractiveness. In many cases beautiful shade trees have had to be cut down to make room for the wires. These cannot be replaced, but an underground system would save further destruction of Banff's beauty from this cause.

SULPHUR BATHS.

I am glad to note that a substantial grant has been made to build a new bath house, a matter that is gone into quite thoroughly in the report of the superintendent. I expect that work will be started in this connection very shortly.

You will note from the detailed statement of the number of guests and bathers at Banff, that there was an increase during 1911, of over 10,000 over the previous year.

Among important exploratory expeditions undertaken by the Alpine Club and its members were: (a) Jasper Park and Mount Robson topographical survey, under Director A. O. Wheeler, F.R.G.S., of which an elaborate report accompanied by a map is being prepared. This expedition was accompanied by a party of four naturalists from the Smithsonian Institute of Washington, in charge of Mr. Hollister, Assistant Curator of Mammals, U. S. National Museum. (b) Exploration in the mountains of Northern Alberta by Dr. Norman Collis, F.R.S., and A. L. Mumm. (c) The Mamquan mountains at the head of Howe Sound, by Vancouver members under the leadership of B. S. Darling. Other expeditions and climbs were made in different parts of the National parks. Mount Sir Sandford was again unsuccessfully essayed.

The Canadian Alpine Journal, containing reports of the previous year's work and much information on the mountain regions, was issued to members and circulated among the Alpine and Geographical Societies of the world.

YOHO AND GLACIER PARKS.

In Yoho and Glacier parks all roads and bridges were given a thorough overhauling, and trails were cleared of fallen trees. Additional rustic seats were placed along two of the drives, and the National Bridge and Emerald lakes drives were connected by a carriage road, thus making a return drive. Another great beauty spot was added to the attractions of the park by the building of a road from the Natural Bridge to a canyon a distance down the Kicking Horse river. The old grade of the C.P.R. which was abandoned upon the completion of the spiral tunnels, was used to make a carriage road of three and one-half miles from Field. The bridges along the road were covered with three-inch plank and railed on each side. The superintendent urges in his report that this road be extended and that an appropriation be made for the purpose. In this regard I entirely concur with him.

Regarding the protection of game in this park, I hope that some arrangement can soon be made with the Provincial Government of British Columbia to assist in the propagation of the many species to be found in the reserve.

In connection with the drive in Glacier Park, from Glacier to the Nakimu Caves, which we were unable to finish last year, I am glad to notice that an appropriation has been made for its continuance, and I trust the road will be finished before the

fall of 1912. Work will also be started the coming year on the road to Stephen, the eastern boundary of the park, for which an appropriation has been made. When completed I am convinced it will make one of the most beautiful drives in America.

The usual work of repairs will be carried on this year, and a steel structure bridge will be built across the Kicking Horse at Field, the appropriation for which has been made. The balance of the work consists of extensive repairs to the present roads and fire and game protection.

BUFFALO PARK.

The report of the Superintendent of Buffalo Park is very encouraging, and he makes several suggestions which I think it would be wise to follow. The rainy season in the neighbourhood during the summer and fall of 1911 retarded the progress considerably, but if the new suggestion that three hundred acres be put in oats is adopted. all danger from a shortage of food will be removed. The matter of fire guards about this park is a very important one, and it will be well to see that the utmost precaution is taken against this danger of fire.

Acting under the Department's instructions an outfit of horses and equipment has been purchased and a large block of land broken and seeded.

The increase of the herd of buffalo of 172 head during the year is very gratifying. Regarding the matter of old bulls dying during the winter or being killed by younger ones, I would strongly advise that the superintendent's recommendation that a number of these be killed in the fall when their hides are good be approved by the department and the necessary order issued to earry out the recommendation. December is the proper month for this killing. The robe is valued at more than \$100 and the head about \$500. The meat could be sold for a good price during the Christmas season. As it is now the buffalo die or are killed on the prairie, and are a total loss by the time they are found.

It will be noted that there has been a favourable increase of all animals with the exception of antelopes. They have made no increase whatever, and we are unable to explain the reason. The census at the end of the year showed: Buffalo, 994; moose, 11; elk, 18; deer, 50; antelope, 14.

The equipment at this park now is very complete in every respect, and no further expenditure for improvements will need to be made for several years to come, outside of ordinary maintenance, such as fire guards and hay for the buffalo. A very conservative estimate of the buffalo calf erop for this year would be 200; it will probably be nearer 250. During the year eight head were shipped in from Montana by M. Pablo, and it was fully hoped that Mr. Pablo would have been able to clear the range and ship the balance of the buffalo contracted for, but after repeated efforts during the winter, he was forced to abandon the chase, as the animals were scattered over such a wide expanse of country that they could not be collected. He managed to corral seven head in the mountains in the month of March, and it is expected these will be shipped in a very short time. Mr. Pablo has written asking the government to give him one more chance to clear the range after the snowfall in the autumn, when he will be able to track them, and if the department will grant his request I have no doubt he will be able to make a complete clean-up, as it is his intention to kill any outlaw that he is not able to corral. I may say that, although he was not able to deliver many buffalo during the year it was through no fault of his, as I am well informed he did everything in his power to corral the entire remnant of the herd during December and January.

WATERTON LAKE PARK.

I quite agree with the report of the Superintendent of Waterton Lake Park, when he refers to the reduction of the area, as this cutting out of the lakes and also a por-

tion of the land situated between this park and the United States Glacier Park changes the original intention, which was to have this park adjoin the one on the other side of the border and make one huge game preserve. The cutting down of the area entirely cuts out the Waterton Lakes, which are nine miles long, six of which are in Canada. I would strongly urge that, at least, a portion of the mountain section lying between the two parks be restored, as well as the lakes.

About four miles of the road were constructed in the park during the year, and during the month of March a bridge was built over Pass Creek. One of the most dangerous streams in the original area of the park, the Waterton river, is badly in need of a ferry, as at present there is none for 40 miles. The superintendent of the park states that there have already been three fatalities on this river, while many horses have been lost. An appropriation was made for this ferry, but since this was done the river has been excluded from the park and we would not be justified in making the expenditure outside the reserve.

I would like to include in my report the last paragraph of Mr. Brown's report

which I agree with in every particular:-

'In conclusion I might add that the enlargement of this park is greatly desired by the people of the district, and also by the sportsmen here and on the United States side. The Campfire Club of America is very anxious to co-operate with any action taken for the protection of our fast disappearing game. There is a vast area here that seems to be useless for any other purpose.'

ELK ISLAND PARK.

As will be seen from the report of the Superintendent of Elk Island Park, the animals under his charge have all increased favourably, no loss of any kind being reported, with the exception of one cow that became disabled and had to be shot. The increase in the buffalo was thirteen. Nine moose were shipped in from Banff, and three which were captured in the vicinity of Lesser Slave Lake were added to the herd. The estimated number of elk at present is thirty-five, and deer about forty-five.

JASPER PARK.

At the commencement of the fiscal year, April, 1911, Mr. J. W. McLaggan, who had been acting as chief forest ranger and acting superintendent of this park for the previous year, severed his connection with the Parks Branch of the Department of the Interior, and this park has since been under my personal supervision. At that time the end of steel on the Grand Trunk Pacific was at Prairie Creek, 183 miles west of Edmonton, and three miles from the eastern boundary of the park. During the months of May and June the steel reached the crossing of the Athabaska river, about twenty-four miles from Parkgate, and in the month of August was completed to Fitzhugh. There are now about 64 miles of the main line in the park on which trains are running regularly.

At Fitzhugh a twelve-stall roundhouse has been erected, as well as a commodious station with dining hall attached. The work of laying out extensive yards is now well under construction. Up to the present no survey for a townsite has been made, but we are daily expecting an engineering party through there to do this work. An efficient water service has been built through the proposed townsite to the station. This water is brought from a dam on a stream known as Cabin creek, and has a total fall of 102 feet. The water is of the finest quality, and a sufficient supply for some years is assured.

One could scarcely choose a more beautiful spot for the townsite than the one decided on. It is comparatively level over its whole area of two miles long and one mile wide and is quite heavily wooded. The famous old Yellowhead trail runs through it, and is still used as a pathway from the station to the engineers' camps, which are located on the most beautiful spot on the whole townsite.

Fitzhugh is the first passenger divisional point west of Edmonton, and will no doubt be the most important town, from a railway point of view at least, of any in the mountains east of the British Columbia boundary. As far as Fitzhugh the road follows the Athabaska river, but there it leaves the valley and turns northwesterly up the Miette river. The valley of the Athabaska river, from one and one-half to three miles broad, forms one of the many contrasts noticed in comparing the route of the Grand Trunk Pacific with that of the Canadian Pacific through the Kicking Horse. Its breadth gives the traveller a much better view of the mountains than could otherwise be obtained. The Miette river itself is a much smaller stream than the Athabaska, but has all the turbulency usual in mountain streams.

Pocahontas station, where the Jasper Park Collieries are located, will become a more important district each year. A large amount of development work has already been done here by the Jasper Collieries, Limited, and the average daily output of the mine is now 350 tons, although the mark of 500 tons has been reached. The company has its own townsite on a level a couple of hundred feet above the station, and immediately under the Roche Miette, one of the grandest peaks in the park. This peak has 8,100 feet to its credit above the sea level and is 2,900 feet above the coal mines.

Jasper Park Collieries, Limited, have proved a large quantity of coal in the four claims that have been opened up and many more outcroppings have been discovered on both sides of the Athabaska river, which passes through the property. The seam that is now being worked is a ten foot one, which in places opens out to fourteen feet. The original prospecting was done to find this coal two years ago but actual operations were not commenced until last September. Since that time 45,000 tons of coal have been loaded on cars and consumed on the Grand Trunk Pacific. There are 150 men working now, but this force will be materially increased in the spring, when \$100,000 worth of new equipment will be put in, all electrically driven. Already thirty frame houses have been erected by the company on its townsite, and ten more are in course of erection. These will be rented to employes for from \$10 to \$12 a month, according to size.

The Canadian Northern Railway enters the park on the west side of the Athabaska river, and the right-of-way follows the river. It is fully expected that the steel will be laid through the park to the summit by the end of the summer of 1912.

Fourteen miles to the east are to be found hot springs with a higher temperature and a bigger flow than those at Banff. The water will probably be piped down from its source to the site of the Grand Trunk Pacific Hotel, which is to be built on a hill overlooking Fiddle Creek Canyon, four miles away from the colliery. The canyon is about 200 feet high, and during the time of the spring freshets carries an enormous volume of water. The hotel will cost about half a million dollars, and will be built in such a manner that it can easily be extended.

A trail has already been constructed from the colliery to the hot springs, a distance of about fourteen miles, and surveyors are now engaged in locating a carriage drive to the hot springs, which, when completed, will be one of the best scenic roads in any of our parks.

About thirty miles west of Fiddle Creek a bridle trail has been cut to Maligne Lake, which lies some thirty-five miles south of the railway. This lake is acquiring world wide fame as a beauty spot. Its waters are wonderfully clear and cold, and in

many places sheer walls of rock, thousands of feet in height, rise from the very shores of the lake. In many of the lakes, of which there are great numbers scattered throughout the park, trout are found and caught in large numbers. During last year a great many well known scientific men visited this park and were very enthusiastic in their praise of its beauty. Indeed, several of them declared there was nothing to rival it in beauty in America. Mr. Proctor, the famous seulptor and water-colour artist, spent six weeks in the vicinity of Maligne Lake, and exclaimed enthusiastically on his return: 'It is just as God turned it over.'

The principal work done during the year was the building of the two trails previously mentioned, and in fire and game protection. Until the present railway construction is completed through the park, no very extended system of road making can be undertaken. The principal work for the coming year should be on a carriage drive to the hot springs, so as to make it possible for tourists and others to get to this point. We will also guard very carefully to protect the game from poachers, and the forests from fires. The large number of men employed on construction in blasting and burning makes it imperative that we keep up a careful and continuous patrol.

In conclusion I desire to express my appreciation of the support which I have at all times received from the Department in furthering the development of the Canadian National Parks, and also of the liberality of the grants made by Parliament for this work. I have endeavoured to the utmost of my ability, to expend the money entrusted to me as economically and judiciously as possible so as to ensure the best and most lasting results. The constantly increasing popularity of the parks, and the prospects of large additional revenues which are to be derived from different sources would undoubtedly seem to justify the still larger expenditure necessary to keep pace with growing requirements.

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

HOWARD DOUGLAS,

Chief Superintendent Dominion Parks.

No. 2.

REPORT OF THE SUPERINTENDENT OF ROCKY MOUNTAINS PARK.

Banff, Alberta, April 1, 1912.

The Chief Superintendent of Dominion Parks, Edmonton, Alta.

SIR,—I have the honour to submit my second annual report as Superintendent of the Rocky Mountains Park for the fiscal year ending March 31, 1912, and in its preparation I have endeavoured to include and confine the review to such particulars as would interest my superiors in the management and administration of the property and public interests entrusted to my care.

The general work of park maintenance and all new construction work progressed during the whole season without any serious interruptions with the possible exception that I experienced some difficulty at one time in securing labourers. I have inspected all the work performed and it is very gratifying to be able to report all new work and repairs as having been completed in a manner above criticism.

All sources of revenue have increased considerably over the total realized for the fiscal year ending March 31, 1911, except the Mining Lands Branch. Rentals for coal lands have just about equalled last year's, but the royalty is so small as to be scarcely worth mentioning. This shortage is due to the Alberta coal strike, which went into effect on the 1st of April last. All mines were closed from the 1st of April to about the 15th of December, and even at this time they are not working at full capacity.

FIRE AND GAME PROTECTION.

The system, perfected (as nearly so as our staff of game guardians would permit) for the protection of game within the park has been productive of the most satisfactory results. Those consigned to this class of work have been constantly on the alert to prevent any unlawful destruction of game and they report that in no instance has any evidence of such violation of the park regulations been discovered. Rocky Mountains sheep are becoming less timid each year, and during the construction of the Banff to Laggan road, a flock of over twenty-five of these animals could be seen feeding above the road at almost any hour of the day.

Bears have given us very little trouble this year as we were called upon to destroy but one, in the neighbourhood of the Hot Springs.

Our permanent and temporary game guardians have destroyed forty-five coyotes, which record exceeds that of last season by fifteen animals.

The fire and game guardians employed have shown good judgment in the performance of their duties and the interest in their work has been particularly noticeable by the initiative manifested in their effort to keep all hunting parties under their observation and in preventing violation of the regulations. It is my opinion that the example made of the hunters caught killing game in the park in 1910, has had an excellent moral effect upon those who had been successfully poaching during previous seasons.

I also had a man stationed at the Spray lakes who patrolled the neighbourhood regularly and prevented the dynamiting and catching of fish by unlawful methods. From this point we also travelled once a week to Mount Assiniboine.

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A man was also located at the new cabin on the Kananaskis and two others were continually scouring the country north of the Canadian Pacific railway track from the Panther creek cabin to the Clearwater and Big Red Deer rivers.

In addition to the men distributed to the foregoing points, I had three men make daily trips on railway velocipedes to extinguish any fires that might have been caused by locomotive sparks, and one other who was on duty at Banff and kept himself posted with regard to all tourists and hunting parties outfitting and leaving from Banff.

The results have been most satisfactory. One man was convicted of catching fish and game unlawfully and fined, and another was found with a shot gun in his possession (unsealed) which was confiscated and the owner fined.

One small fire occurred about four miles west of Banff near Mount Edith Pass, but did no damage and the only other fire occurred in the neighbourhood of Duthill, about five miles east of Banff. Neither of them was serious and they were at no time beyond control.

It is my opinion that the system inaugurated this year for the protection of fire and game will be an excellent one to follow in the future. With the small staff of seven men and with so large an area to be covered the patrol is not comprehensive enough, but as this was the first year of its trial, I think the results attained by even the few employed in the work should conclusively prove the merit of this system, and warrant the employment of a larger force in order that it may be brought to a state of perfection.

ROADS, BRIDGES AND FENCING.

The completed roads within the park all required more or less attention during the season, and before a mag into details the following list of roads now constructed in the park may be of interest as reference:—

Mi	les.
Kananaskis to Panfl	35
Banff to Hot Springs	3
Banff to Sundance Canyon	4
Banff to lumber camp on Spray river	8
Tunnel Mountain drive	5
Lake Minnewanka drive	9
Banff to Laggan coach road	5
Laggan to Lake Louise	3
Lake Louise to Moraine Lake	9
Bankhead road to Buffalo paddock	1
Town streets	6
Loop drive	7
Cammore station to Mines	1.5
Total	96.5

Three miles of the Banff to Laggan coach road were constructed, completing an excellent drive for a distance of about five miles from the railway station, with the exception of a stretch from the track to Stoney Squaw Mountain. I had a wide cut made through the green timber from the road crossing the railway (near the steel Canadian Pacific railway bridge) across block 'C' and the completion of this work will be the first undertaken next season. This new cut necessitated the erection of a new wooden bridge over Forty-Mile Creek. This structure was finished last winter and does away with the old, unsafe bridge which was built further up the creek a number of years ago.

In cutting out this new stretch of road from the track to the mountain, we accumulated a large quantity of green timber and our local saw mill being in the same vicinity I had it sawn into boards and dimension timber. This has supplied us with over 35,000 feet of economical building and bridge timber of the very best quality and will be of great value to us in constructing the new bridges on the Banff to Laggan road.

The Hot Springs, Sundance Canyon. Spray river, Lake Minnewanka, Laggan to Lake Louise, Lake Louise to Moraine Lake, Bankhead to Buffalo Paddock and Canmore station to Mines roads and all town streets were all thoroughly repaired. The Canmore station road is practically an entirely new one.

At the close of the 1910-1911 season there remained to be finished about one quarter of a mile of road from Lake Louise to Moraine Lake. There was a great deal of very hard and laborious rock work to cut through, and as it was necessary that this road should be completed as early in the spring as possible, I first started a small gang in May and increased the force in June. The road was first put in shape from the station to the Chalet, and then completed to the Lake and was in excellent condition before the tourist season at this point fully opened. It is a most difficult and discouraging undertaking to keep this road in first-class condition. The soil and available material are not fit for road building. It will not build up a good bottom, and the heavy loads continually passing over this thoroughfare cut through the crown, thus making ruts that fill with water which drains from the side-hill. This eventually forms a deep hole of mud, and results in a cut or washout across the road. Culverts would remedy this difficulty if these washouts occurred at the same point every year, but they are always happening in different places. Since the close of the Laggan tourist season the Canadian Pacific Railway Company have hauled seventeen cars of cement over the road from the station to the Chalet and such usage will test even a good road-bed to the utmost. The total amount expended at this point during the year was \$1,645.67.

We built eight miles of new road (Banff to Calgary) and it was in fairly good shape during the summer. It has been used a great deal by Calgary autoists, over one hundred and fifty automobiles having made the trip from Calgary to Banff during July, August and September.

A small bridge was built over the Spray river at a cost of \$200. In finishing the cinder paths on Banff Avenue, we had to construct two rustic bridges to span wet places and depressions that it would cost too much to fill. Another bridge of this style was built on Buffalo Avenue, as well as one on Wolf Street.

Since the first of April last, we have built trails to the following points:

	7/1	i.es.	Cost.
Sundance Canyon to Brewster Creek		16	\$ 350
Laggan to Bow summit		30	1,300
Sawback Lakes to Bankhead		28	750
Spray Lakes to Mt. Assiniboine		18	450
Simpson-Pipestone Trail		6	200
	_		
Total mileage of new trails		98	\$3,050

TOTAL MILEAGE OF TRAILS IN PARK.

	I	Miles.
Spray to Mt. Assiniboine		18
Banff to Spray Lakes		30
Bow summit		30
Banff to Brewster Creek		16
Simpson to Pipestone Trail		6
Cascade (Sawback to Bankhead)		28
Mt. Edith Trail		11
Lake Minnewanka Trail		14
Simpson Pass to Simpson Summit		14
Total distance		167

Every one of these trails has been inspected and our staff of fire and game guardians have been regularly travelling over them during the year, reporting them in excellent condition last fall.

SIDEWALKS, CINDER PATHS, ETC.

During the season there were 8,000 lineal feet of six-foot einder paths completed, and they have proved a great convenience and greatly lessened danger to pedestrians.

TELEPHONE SYSTEM.

Most of our expenditure on this account was almost entirely confined to installation, maintenance and salaries. As the town increases in permanent residents, so do the number of new subscribers increase. The revenue realized is considerably more than that of last year.

One of the first improvements that impressed me should be made, when I took up my duties here, was the manner of the wiring. When phones were first installed in Banff wire-strung poles perhaps did not present an unsightly appearance; but as the number of subscribers increases so does the number of wires and poles, until at the present time some of the streets present the appearance of a business thoroughfare, instead of an exclusively residential street, which, strictly speaking, they all are. The extensions of the telephones demand poles, and on some of the most picturesque streets in the town it has been necessary to cut down large trees that were of great value for shade and ornament, to make room for these poles and wires.

In a town of this character and possibilities where improvements undertaken and capital invested by private interests amount to a large total, everything should be done to make it the most beautiful place in Canada.

My suggestion would be to have these poles removed and the wires run underground. There would be less chance of the 'phones getting out of order, the service would be improved, and the improvements to the appearance of the town would be very great.

STREETS.

The number of good available lots being so limited it became necessary during the past year to open up the street from Cariboo street to Cemetery, and to extend Muskrat, Beaver, Martin, Moose and Rabbit streets. This has provided a great many available lots, as will be seen by referring to the comparison in caption 'Lots and Buildings.' There has been a great increase in lot applications.

LOTS AND BUILDINGS.

In 1910-11 there were fifty applications for Banff townsite lots, but this year there has been a large increase. Since the 1st of April we have accepted 170 new applications, which at a glance will present the satisfactory increase of 120 over last year.

The increase of building has been enormous. The amount according to a conservative estimate totals \$640,100 for the year. This includes the improvements at the Banff Springs Hotel, but not the \$425,000 spent at the Lake Louise Chalet. If this were taken into consideration it would be seen that nearly one million dollars were invested. As an aid to ready reference the following will show the comparison:—

	1910-11.	1911-12.
Lot applications (Banff)	50	170
Lot applications (Minnewanka)	13	8
Lot applications (Canmore)	46	37
Improvements (Banff)	\$212,000	\$640,100
Improvements (Lake Louise)		425,000

WATERWORKS AND SEWER SYSTEM.

On the 31st day of March, 1911, we had 44,930 feet of completed water mains and 13,520 feet of sewer installed and in use, and since that date we have been opening up new streets, which necessitates the extension of both water and sewer mains. This new work amounts to 1,674 feet of water mains and 780 feet of sewer. We circled block number ten from Wolf street to Elk street and from the latter to Wolf on Lynx street. This makes a total of 46,604 feet of water mains and 14,300 feet of sewer at present in use in connection with our water supply and sewer system.

In addition to the extensions we built a large dam and concrete settling tank and rock wing at the intake at Forty Mile creek. Since the old works were erected at this point we have been caused considerable trouble, as they were of poor construction and not at all in conformity with the perfection of the remainder of the system. I had a party engaged on this work up to the time frost prevented a continuance, and will complete the work early this spring before the spring freshets.

The advantage of these improvements will be the elimination of any chance of clogging up the large intake pipe with timber, sticks and gravel, which in the past has been so troublesome as to at times entirely cut off the water supply. Provision has been made so that the flow may be turned from the settling tank and may be supplied to the town direct. This will allow for the cleaning out of the tank from time to time as necessity may demand. After this work is completed, we will have the most efficient and permanent water works system in the province.

AVIARY.

The birds have all done exceedingly well. We lost one North American vulture and one Golden eagle. The last named was fighting with its companion and must have caught its foot in the wire netting as its foot was twisted entirely off. We possess at this time:—

Te	otal
Great horned owl	1
North American vulture	1
Reeves pheasant	1
English ring-neck	
Golden pheasant	
Golden eagle	1
Silver pheasant	3
Lady Amherst	1
Bald eagle	1
Osprey	
Swainson's hawks	2
Canadian wild geese	5

ANIMALS.

For a number of years, I understand, endeavours have been made to secure a grizzly bear cub, and I have pleasure in reporting that I have been successful in obtaining two. They were about six weeks old when I purchased them from an Indian, but at this time are large, militant representative specimens of this ferocious species. They are already becoming so powerful that provision must be made this spring to reinforce their cages, or to build entirely new ones. All our animals have done exceedingly well. Under my care there are at present:—

	Total.
Mountain gopher	. 2
Guinea pig	. 2
Pine marten	. 2
Mexican orange squirrel	. 1
Fox squirrels	. 4
Texas black squirrel	. 2
Beaver	. 2
Resus monkey	. 2
Kit fox	. 3
Red fox	. 2
Lynx	. 3
Racoon	. 2
Porcupine	. 3
Marmot	. 2
Wolverine	. 1
Badger	. 2
Coyotes	. 2
Timber wolves	. 3
Mountain lion	. 1
Black bear	. 1
Brown bear	. 1
Cinnamon bear	. 1
Grizzly bear	. 2
•	

ANIMALS PADDOCK.

All the animals in the enclosure have thrived with the usual exception of the antelope. We shipped all we had of this species to Wainwright, Alberta. Two hybrid buffalo were killed and disposed of this winter, so that we have at present nothing

but pure blood stock. The increase in the buffalo has been three for the season, making a total of twenty-five at this writing. Every animal came through the winter in good condition.

The Rocky Mountain sheep are contented with their surroundings and we should

be proud of the possession of such perfect specimens.

HOT SPRINGS SULPHUR BATHS.

With reference to the Sulphur Springs, I can do little more than to urge once more the immediate undertaking of the erection of new bath houses. At the present time there is not sufficient accommodation and the methods of governing are antiquated. Patrons are not satisfied and now that the Banff Springs Hotel have built a very magnificent bath house and plunge, all hand-laid tiling and an excellent example of luxury and convenience, I do not anticipate receiving the patronage next season that we did last. The amount expended on the Canadian Pacific railway's bath alone is \$70,000.

The government provides the water in its most natural state. It requires no artificial heating as the bath houses are located at the source of supply. If our buildings are improved and made adequate to the demands of the public, I am confident we will receive 90 per cent of the patronage as in the past, but without this improvement we cannot expect anything else but a gradual and perhaps immediate falling off in revenue.

In conclusion I desire once again to acknowledge the faithful work done by the employes who have worked under my direction during the past year, as well as the loyal and cordial support given me by the officers and the men of the Royal Northwest Mounted Police in my efforts to maintain law and order within my jurisdiction.

I have the honour to be, sir,

Your obedient servant,

A. B. MACDONALD,

Superintendent of Rocky Mountains Park.

No. 2 (a).

REPORT OF THE CURATOR OF BANFF MUSEUM.

Banff, Alberta, April 1, 1912.

The Superintendent of Rocky Mountains Park, Banff. Alta.

Sir,—I have the honour to submit herewith my seventh annual report of the Rocky Mountains Park museum for the year ending March 31, 1912.

The number of visitors to the museum has been more or less steadily increasing not only during the summer, but also during the winter.

The following additions were made to the exhibits during the past year:-

A long-tailed weasel, by purchase.

An American pipit, by self.

An American white pelican, by purchase.

A pair of common red squirrels, by self.

Three eggs of the American bittern, by self.

One egg of the wood duck, presented.

Some fossils from near Crossfield, Alta. Presented by Mr. Ross Peecock.

During the season I made a large collection of insects, devoting early mornings, some evenings and several special days to the work. With duplicates of the specimens collected I was able to repay in some measure those who so kindly helped me to classify specimens.

I have again to thank Dr. L. O. Howard, Chief Entomologist of the Bureau of Entomology, of Washington, D.C., and through him his able specialists, for much assistance in classifying material; also to thank Mr. H. Wolley Dod, of Millarville, Alta., for his interest in naming specimens of Lepidoptera.

I have kept in view the getting together of a good representative collection of insects for the cabinet, and hope in the near future to be able to make an open exhibit of the more noticeable insects about the park with material now on hand.

A large collection of willows was made and these will be gone over as time allows. Amongst the lot are a few specimens at present not represented in the herbarium.

A second and more complete list of all the exhibits in the museum with added information was made up and sent to Ottawa to replace the original list which was lost in transit. A list of the original lot of birds received by the museum, with all lated data was also made up and sent to the Victoria Museum, Ottawa, to be used in checking their own specimens.

I would suggest the getting of more cases, so that the specimens of mammals, &c., may be less crowded and also to allow of increasing the exhibits of mammals, birds, minerals, &c.

A book case should be provided for pamphlets, &c., and also a map-holder.

I think it would be in the interests of the museum and the park if in some way I were allowed to do some exploring in at present little known parts of the park, for a few weeks each season, in search of new material, photos, &c., say during June or July, in order to extend the interest and usefulness of the present interesting museum, my expenses being allowed for such work.

During the past year much information was given and I find the work increasing more or less yearly. This is my sixteenth year as curator of the museum and during that period I have tramped thousands of miles over prairie land and up moun-

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tains (in a given area) in quest of plants, insects, birds, mammals, fossils, rocks and general information, with the idea of getting together what fauna and flora, &c., are to be found about Banff with perhaps an extension of limits.

I have to acknowledge the kind assistance and encouragement given me in my work by those under whom I have had the honour to work and hope for continued help and encouragement.

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

N. B. SANSON.

Curator Rocky Mountains Park Museum.

Number of visitors	s at the Museum	from April 1,	1911, to March 31, 1912.
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Canada	9,711
Yukon	7
Newfoundland	3
IVit. d. Ctt	3,932
United States	-
Hawaiian Islands	9
South America	4
Mexico	3
Buenos Ayres	2
Argentine Republic	1
England	$72\overline{5}$
Scotland	211
Troland	
Ireland	102
Wales	16
Isle of Man	4
Channel Islands	1
Australia	92
New South Wales	6
Tasmania	3
New Zealand	
Tradic	40
India	19
South Africa	12
Ceylon	5
Bermuda	2
Fiji Islands (Suva)	2
British West Indies (Grenada)	1
Borneo	1
Molor Stroits	3
Malay Straits	_
Germany	16
Holland	6
Belgium	8
Netherlands	1
Austria	16
France	14
China	11
Korea	7
Ciam	
Siam	1
Switzerland	12
Italy	9
Russia	6
Finland	2
Spain	5
Japan	3
Sweden	3
Norway	1
Donmark	
Denmark	3
Danish West Indies	2
Greece	2
Palestine	2
Turkey	1
Egypt	1
_	

METEOROLOGICAL TABLES.

MAXIMUM and Minimum Temperatures and the General State of the Weather between April 1, 1911, and March 31, 1912.

Date.	Тнекмометь		Weather, &c.		
	Maximum for day.	Minimum for day.			
1911.	0	٥			
April 1	. 28.2	21.8	Cloudy; blustery; snow; some indifferent sleighing; Bohemian waxwings.		
11 2	. 23.3	12 8	Cloudy; light snow; junco; redpolls; Mt. bluebirds.		
и 3,	. 15.1	4.8	Fair; large solar halo; fresh ice on river.		
" 4	28.0	13.7	Fair; thaws afternoon. Fine day. Flock of Swainson's leucosticte.		
п 5,		7.3	Fair; fine day and night.		
$\frac{n}{n}$ $\frac{6}{4}$		10.8	Fair; no sleighing.		
11 8,		22.9	Fair; fine day and night; redpolls; vanessa antiopa butterfly. Main road drying.		
9		23.0	Cloudy; Bow river open above boathouse. Snow flurries.		
n 10		28.8	Cloudy; snow storms off and on all day.		
" 11 " 12		19·7 10·8	Cloudy; snow flurries. Fair; last snowbird; robins plentiful.		
ı 13	. 34.9	14.8	Fair; Sandiego redwings.		
11 14	. 43.1	17.7	Fair; very fine day.		
" 15 " 16		22·2 39·2	Fair; ground bees. Cloudy; squally wind; main road dry.		
ii 17	. 44.0	27.3	Fair; fine day; snow none to patches. Anemone patens variosa in flower.		
ıı 18		25.2	Cloudy; song sparrows.		
19		34·7 25·3	Fair; very fine day and night; frogs piping; aurora. Fair; perfect day; fine night; aurora. Vanessa Milberti butter- fly; various insects.		
11 21	63.0	28.3	Fair; very fine day and night; few water insects.		
11 22		36.8	Cloudy; light rain and snow. Distant terrestrial objects appear quite close and sound very distant. Ruby-crowned kinglets.		
11 23 11 24		26.6 28.5	Fair; very fine day. Cloudy; very fine day; ruby-crowned kinglets. Flickers.		
25	. 53.0	35.9	Fair, light rain; thunder.		
26	49.0	26.0	Fair; very fine day; buffle-head ducks and canvas-back ducks on		
n 27		27:4	river. Fair ; Audubon's warbler.		
11 28	. 49.0	27:0	Cloudy.		
" 29 " 30	. 55.3	$19.9 \\ 22.2$	Fair; perfect day; Shepherdia Canadensis in flower; bumble bees; tiger beetles, etc., grapta zephynis butterfly; solitaire.		
			Fair; perfect day and fine night. Sweetcoltsfoot in flower.		
May 1	55.0	28.4	Fair; fine and calm day; wild strawberry in flower.		
11 2 11 3	54.6	25·9 40·5	Cloudy. Cloudy.		
n 4	. 60.1	42.4	Fair; very fine day and night.		
n 5		32.3	Cloudy; fine day; thunder. Light rain during night.		
" 6 " 7		34 · 8 33 · 5	Cloudy; gale; thunder. Fair; fine day.		
ıı 8	. 49.1	29.0	Cloudy; light rain.		
и 9 п 10		30.3	Cloudy; swallows.		
" 10 " 11		30.8	Cloudy; primula McCallii in flower. Cloudy; sparrow hawk.		
u 12	41.9	33.9	Cloudy; rain; aspen poplar leafing.		
11 13		33.1	Cloudy; rain and snow		
u 14	. 57.9	02 3	Fair; very fine day; Audubon's warbler; white-crowned sparrows.		

MAXIMUM and Minimum Temperatures, &c.—Continued.

=		Тнегмомет	ER READINGS.			
Date. Maximum Minim		THE RESIDENCE OF THE PARTY OF T		Weather, etc.		
		Minimum for day.				
1	911.	0	0			
May	15 16		28·3 39·9	Cloudy; rain; heavy dewfall. Cooper's sharpshinned hawk. Large flock Swainson's leucosticte.		
11	17	51.3	41.5	Cloudy, swallows; cowbirds; redwings; wild geese; duck. Cloudy, very squally wind.		
£†	18	57:7	37.9	Fair.		
11	$\frac{19}{20}$	53.4	38.7	Cloudy, aurora; chipping sparrows.		
11	20	58.8	29.0	Fair; fine day and night; ruby-crowned kinglet, kingbirds, American pipit.		
11	21	52.1	39.3	Cloudy; light rain and snow; white crowned sparrow, juncos. Andubon's warbler.		
- 11	22	33.0	28.3	Cloudy; light snow. Townsend's solitaire. Thrushes; chipping sparrows.		
11	23 24	38.0	28·2 29·8	Cloudy; snow; white-winged scooter on Bow River. Cloudy; snow flurrries; Holbach's grebe on Bow River.		
11	25	46.8	28.1	Cloudy; all birds numerous.		
- 11	26	47.2	26.3	Cloudy; light snow; large flycatcher.		
11	$\frac{27}{20}$	48.0	26:2	Cloudy; spotted sandpiper.		
- 11	$\frac{28}{29}$	59·5 64·2	24·3 27·8	Fair; very fine day; kingfisher.		
11	$\frac{29}{30}$	69.6	35.9	Fair; fine day and night; humming bird z; grouse drumming. Fair; very fine day and night.		
11	31		31 5	Fair; very fine day and night; rivers rise much.		
June	1	71.0	33.8	Fair; very fine day and night.		
11	$2 \dots$	71.3	35 2	Fair; rain with hail; thunder.		
11	3		38·0 29·3	Fair; fine day and night.		
	4 5		31.4	Cloudy.		
,	6		35 2	Cloudy; light rain; yellow warbler.		
11	7	44.4	36.5	Cloudy; rain; thunderstorm; mountains obscured by cloud.		
11	8		37.8	Cloudy; fine day and night.		
11	$\frac{9}{10}$		44·9 44·2	Cloudy; fine day.		
11	11		39.0	Fair; perfect day and very fine warm night. Fair; thunderstorm.		
11	$\tilde{12}$		42.2	Fair; very fine day and night.		
11	13	72.4	39.0	Fair; thunder with light rain.		
11	14		39:4	Fair; fine day; thunder.		
11	15 16		37·9 40·6	Fair: very fine day and night.		
11	17		38 0	Fair; fine day and night. Fair: very fine day and night.		
17	18		37.0	Fair; perfect day.		
11	19		45.2	Fair; very fine day; Bow and Spray Rivers very high and very muddy.		
11	$20\ldots$		39.5	Fair; fine day.		
	$21 \dots 22 \dots$		39·8 50·2	Fair; rain during night.		
11	23	65.4	38.3	Fair; rain; thunder. Cloudy; fine day; rain during night; thunderstorm.		
11	24	53.3	47.2	Cloudy; rain.		
11	25	60.6	41.2	Cloudy; fine day.		
11	26		38.7	Cloudy; fine day.		
11	$\begin{array}{c} 27\\ 28 \end{array}$	58.4	50·1 49·2	Cloudy; rain.		
11	29		41.8	Cloudy; fine day and night. Fair; rain.		
- 11	30	55.1	45.8	Cloudy; rain.		
July	1	65.8	46.9	Cloudy; rain; very fine complete double rainbow.		
11	2	57·7 59·3	48.8	Cloudy; thunder; 1ain.		
11	3 4		42·7 39·9	Cloudy. Cloudy; rain.		
11	5	69.4	30.2	Fair; nearly all plants in flower in valley.		
11	6	73.4	38.3	Fair; thunder and lightning; rain.		
11	7	58.8	43.3	Fair; rain.		
11	8	59·7 60·8	39·0 45·9	Cloudy; rain.		
91	$\frac{9}{10}$		45 9	Cloudy; rain. Fair.		
11	11	60 9	35.8	Fair.		

MAXIMUM and Minimum Temperatures, &c .- Continued.

Date.	THERMOMETER READINGS.			
	Maximum for day.	Minimum for day.	W∈ather, &c.	
1911.				
July 12	70.1	30.8	Fair; perfect day.	
и 13	79.3	34 · 2	Fair; perfect day.	
" 14 " 15		37.8 42.6	Fair : very fine day : fine aurout	
16		44.2	Fair; very fine day; fine sunset. Fair; very fine day.	
17	64.7	52.1	Fair; fine day.	
" 18 " 19	60 · 8 55 · 2	41·9 40·7	Cloudy; rain during night. Cloudy.	
20	74.4	36.2	Fair ; perfect day.	
n 21	75.5	48.4	Fair; very fine day; thunderstorm with light fall of rain; thunder in loud peals.	
u 22	60.0	44.2	Cloudy; light rain.	
" 23 " 24	83.5	37·4 42·4	Fair; very fine day. Fair; very fine day and night.	
n 25	86.2	42.3	Fair; lightning; very fine but hot day.	
26	66.5	47.5	Fair.	
, 27 , 28	68.1	40·3 43·8	Cloudy. Fair; fine day.	
n 29	68.3	48.9	Cloudy.	
30	65.5	39.3	Fair; fine day.	
" 31 Aug. 1		37·0 44·9	Cloudy ; rain. Cloudy ; heavy rain during night ; fog.	
n 2	62 1	42.9	Cloudy; rain.	
н 3,	64 9	44.9	Fair; tine day; heavy rain during night.	
" 4 " 5		42·2 40·8	Cloudy. Cloudy ; rain.	
п 6,	52.1	45.2	Cloudy; light rain.	
· · · · · · · · · · · · · · · · · · ·		43.0	Cloudy; rain.	
n 8		36·4 37·7	Cloudy; rain. Fair; fine day.	
ıı 10		32.9	Fair; very fine day.	
11 11	67:4	34.3	Fair; thunder; shooting stars.	
" 12 " 13	69.5	34·8 36·5	Fair; fine day; thunder; heavy dewfall; shooting stars. Fair; rain; fine day.	
14		36.4	Fair; lightning; very fine day.	
11 15	49.9	37 4	Cloudy; thunder; rain.	
" 16 " 17	67 5 73 7	35·8 37·8	Fair; fog; very fine day. Fair; perfect day.	
18		32.5	Fair ; perfect day.	
" 19		36.2	Fair; rain; thunder and lightning	
20 11 21	56.8 57.9	39·3 31·7	Cloudy; light rain.	
u 22	57.2	41.3	Cloudy; light rain. Cloudy.	
n 23	68.2	30.5	Fair; perfect day; aurora.	
24 25	70·1 55 0	33 · 2 41 · 6	Fair; very fine day. Cloudy; very heavy rain, for about 4 hours during morning.	
· 26	56.1	39.1	Cloudy.	
27			Fair; perfect day and fine night; midges in swarms, but not troublesome.	
28 29	67·0 64·3	40·8 45·1	Cloudy; very fine night.	
ıı 30 .	67.0	48.8	Cloudy; fine day. Fair; fine day.	
31	70.4	48.7	Fair; squally wind but very fine day and fine night.	
Sept. 1	71·5 71·9	$\frac{38.3}{35.7}$	Fair; very fine day and night.	
3	53.9	50.5	Fair; very fine day and warm night. Cloudy; heavy rain.	
· 4	47.9	43.3	Cloudy.	
n 5			Cloudy.	
" 6 " 7		35·7 29·0	Cloudy; first snow on mountain tops. Fair.	
ıı 8	60.3		Fair ; fine day.	
9		32.0	Fair; fine day.	
,, 10	70.7	29.8	Fair; perfect day.	

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MAXIMUM and Minimum Temperatures, &c .- Continued.

Date.	THERMOMETER READINGS.		
17400.	Maximum for day.	Minimum for day.	Weather, &c.
1911.	0	0	
Sept. 11 12 13 14 15 16 18 19 18 19 21 22 23 24 25 26 30 Oct. 1 2 30 Oct. 1 2 30 Oct. 1 2 30 10 11 12 13 14 15 16 17 18 19 10 11 11 12 13 14 15 16 17 18 19 10 11 12 13 14 15 16 17 18 19 19 10 11 12 13 14 15 16 17 18 19 19 19 10 11 12 13 14 15 16 17 18 19 19 19 10 11 12 12 13 14 15 16 17 18 19 19 19 19 10 11 12 11 12 12 13 14 15 16 17 18 19 19 19 19 19 10 11 11 12 12 13 14 15 16 17 18 19 19 19 19 19 10 11 12 11 12 12 13 14 15 16 17 18 19 19 19 10 11 12 11 12 13 14 15 16 17 18 19 19 19 10 11 12 11 12 11 12 12 13 14 15 16 17 18 19 19 19 19 19 19 10 11 11 12 11 12 11 12 11 12 11 12 11 12 11 12 12 13 14 15 16 17 18 19	72·4 56·9 60·0 51·2 48·3 51·1 51·0 53·2 51·0 34·3 31·2 35·6 43·2 53·5	11:5 15:8 6:8 18:9 24:4 30:9 22:1 22:8 8:0 -4:2 -16:3 -38:0 -37:1	Fair; perfect day. Cloudy; strong wind. Fair; perfect day. Cloudy; squally wind; rain. Cloudy; squally wind; rain. Cloudy; light rain; fresh snow on mountains. Cloudy; light rain; fresh snow on mountains. Cloudy; light rain; changing to snow at midnight. Cloudy; light snow. Cloudy; light snow. Cloudy; light snow; raw day. Fair; fine day. Fair; fine day. Fair; perfect day. Fair; perfect day. Fair; very fine day. Fair; very fine day. Cloudy; light snow. Cloudy; light snow. Fair. Fair very fine day. Fair; perfect day; leaves blowing off poplars. Fair; a gale; fine warm night. Fair; very fine day; fine sunrise. Fair; very fine day; fine sunrise. Fair; very fine day; fine sunrise. Fair; perfect day; fine sunrise. Fair; perfect day; fine sunrise. Fair; perfect day; fine sunrise. Fair; perfect day; strong wind; aurora. Fair; very fine day; strong wind; aurora. Fair. Cloudy; light rain during night; fine sunset. Fair; perfect day: observed comet 6 a.m. in east. Cloudy; snow flurries during night; fine sunset. Fair; perfect day; observed comet 6 a.m. in east. Cloudy; snow flurries. Fair; perfect day; snowbird. Fair; perfect day. Fair; perfect day; snowbird. Fair; perfect day. Fair; perfect day. Fair; perfect day; snowbird. Fair; perfect day. snowbird. Fair; perfect day. Fair perfect day. Fair perfect day. Fair p

MAXIMUM and Minimum Temperatures, &c .- Continued

Date.	Тнегмомете	ER READINGS.	Weather ate
Date.	Maximum for day.	Minimum for day.	Weather, etc.
1911.	0	0	
" 13 " 14 " 15 " 16 " 17 " 18 " 19 " 20 " 21 " 22 " 23 " 24	37·3 28·0 32·9 36·9	-17.6 -17.1 17.8 18.8 24.2 31.7 27.7 22.8 21.8 8.8 14.0 20.7 27.8	Cloudy; blustery; large solar halos; light snow. Cloudy; snow. Fair; strong wind afternoon. Fair; strong wind late afternoon. Cloudy; strong wind for 1 hour; Bow and Spray rivers rise. Cloudy; light rain and snow; strong wind late afternoon. Cloudy; light snow during night. Fair; fine day; light snow during night; flock grosbeaks. Cloudy; fine day. Fair; strong wind morning. Fair; strong wind morning. Fair; strong coldish wind.
7 25 1 26 27 1 28	22.3	8.5 -13.9 0.8	Cloudy; snow. Fair; light snow; sleighing good. Fair; fine clear day. Fair; very squally; cold wind; a gale; very cold; very fine sun-
" 29 30 Dec. 1 30 Dec. 1 30 30 30 30 30 30 30 30 30 30 30 30	31 · 2 33 · 9 32 · 7 33 · 0 32 · 1 36 · 2 32 · 0 30 · 0 26 · 0 30 · 3 29 · 0 28 · 3 27 · 0 20 · 2 13 · 0 20 · 2 13 · 0 20 · 8 22 · 8 24 · 0	13·3 20·3 29·7 15·9 16·0 12·4 23·4 10·2 24·2 28·0 26·6 18·0 6·0 22·1 12·7 19·6 - 8·3 2·9 10·0 - 0·1 16·8 11·8 -12·9 -12·7 -13·3 -11·0 -17·4 -25·7 -28·8 -26·3	set. Fair; Cloudy; ice on Bow about 11 inches. Cloudy. Fair; perfect day; beautiful moonlight night. Fair; perfect day; fine moonlight night. Fair; perfect day; fine moonlight night. Fair; perfect day; fine moonlight night. Cloudy; sleighing indifferent. Cloudy. Cloudy. Fair; fine day. Fair; fine day. Fair; fine day. Fair; the day. Fair; very fine day. Fair; very fine day. Cloudy; strong wind. Fair; very fine day; Lake Minnewanka frozen. Fair; perfect day. Cloudy; squally wind afternoon. Cloudy; squally wind afternoon. Cloudy; squally wind. Fair; perfect day. Fair; perfect day. Cloudy; ice on Bow river 14 in.; squally wind in evening. Cloudy; snow; Lake Minnewanka ice bearable. Fair; perfect day; sleighing good. Fair; very fine day; temperature rises during night. Fair; fine caln day. Cloudy; little snow; very squally cold wind; snow drifting. Fair; snow flurries; cold and squally wind. Fair; fine calm day; sound very distinct. Fair; perfect day. Fair; Arctic three-toed woodpecker.
Jan. 1 " 2 " 3 " 4 " 5 " 6 " 7 " 8 " 9	10·4 4·3 5·0 7·7 15·3 5·0 14·9	-11.0 -25.2 - 6.0 - 8.2 - 3.2 31.6 18.4 8.8 23.6	Fair; very fine day; large lunar corona. Fair; very fine day. Fair; very fine moonlight night. Fair; light snow during night. Cloudy; clear moonlight night; mock sun. Fair; clear bright day; ice on Bow 18½ inches. Cloudy; squally wind. Fair; cold wind morning; clear sky all day. Cloudy; squally wind; snow flurries; extremely cold day; mock sun; snow during night

MAXIMUM and Minimum Temperatures, &c.—Continued.

Date.	Тнекмометн	ER READINGS.	Weather, &c.
	Maximum for day.	Minimum tor day.	
1912.	0	0	
Jan. 10	18·8 12·2	28·8 37·6	Cloudy; light snow. Fair.
12	23·2 35·8	13·2 5·8	Cloudy; squally wind; light snow. Cloudy; temp. drops 26° in 3 hours afternoon; again rises many d grees by 8 p.m.; ice on Bow 24 in.; cutting ice on Bow; 13 in. of snow.
" 14 " 15	44 6 41 0	1·4 34·6	Cloudy; chinook all day; much snow goes. Cloudy; slippery walking; Clarke's crow.
11 16	29·2 9·2	19·7 4 7	Cloudy; snow. Fair; perfect day.
17 11 18	14.1	16.0	Fair; fine day; squally wind evening; fine sunset.
19	$\frac{12 \cdot 2}{22 \cdot 6}$	2·8 1·1	Fair; strong wind all day. Cloudy; squally wind; cold all day.
" 21 " 22	35·0 32·0	18.5 16.2	Cloudy; squally wind morning. Fair; very fine day.
11 23	27.1	11·3 13·0	Fair; perfect day; fine night. Cloudy; strong wind all day; chickadees.
11 24 11 25	31·0 39·4	28.1	Cloudy; fine mild day; very fine night.
11 26 127	25·3 32·1	11.8 15.2	Cloudy; calm fine day. Cloudy; ice on Bow about 26½ inches.
28	31·8 42·0	12·5 26·3	Cloudy; fine mild night. Cloudy; much snow goes; little snow during night.
11 29 11 30	38.0	30.7	Fair; very fine day.
Feb. 1	29·3 34·2	9·2 11·1	Fair; perfect day. Fair; perfect day: fine clear moonlight night; very fine sunset.
" 2 · · · · 3 · · · ·	38·2 27 0	- 1.1	Fair; perfect day; fine clear moonlight night. Fair; perfect day; clear moonlight night; ice as cut on Bow river 27 inches.
n 4 n 5	25·2 35·2	- 3·3 3·5	Fair; perfect day; clear moonlight night. Fair; very large lunar corona.
п 6	31.0	26.0	Cloudy.
" 7····	23·0 35·5	17·2 9·8	Cloudy. Cloudy.
" 9 " 10	36·1 38·8	23·2 29·0	Fair; fine day. Cloudy.
11	37·1 34·1	24.8 18.1	Fair; fine afternoon; very fine sunset. Fair; very fine day.
11 12 11 13 11 14	36 5 38·2	21·9 29·0	Cloudy; chinooking; water ousel. Fair; very fine day; sleighing indifferent; Banff Bonspiel commencing.
n 15	35.8	31·2 28·2	Cloudy; squally to very squally wind.
u 16	38·0 36·1	25.1	Cloudy; chinooking; fine day. Cloudy.
" 18 " 19	35·3 28·8	19.8 12.6	Fair ; very fine day. Fair ; snow flurries.
11 20	28 6 32 3	2·3 18·4	Fair; fine day.
11 22	34.0	22.0	Fair; very fine day; fine clear night.
23 24	33.0	1.6 0.8	Fair; very fine day. Fair; very fine day; clear night; wheeled vehicles mostly in use.
. " 25	30·6 29·0	1·7 15·2	Fair; fine day. Fair; light snow mostly during night.
27	20.2	4·9 13·4	Fair; fine day and night; mock sun.
28	17·0 17·9	20.4	Fair; perfect day. Cloudy; very large solar and lunar halo.
Mar. 1	14·3 21·2	$\begin{array}{r} 2.5 \\ -21.2 \end{array}$	Fair; fine day, very large solar halo. Fair; perfect day; clear moonlight night.
п 3	25·7 25·5	-13·3 -13·7	Fair ; perfect day. Fair ; perfect day ; clear night.
" 4 5	33.2	-12.0	Fair; perfect day; clear night.
n 6 n 7	22·9 26·2	$-4.7 \\ -17.6$	Fair; fine day; clear night. Fair; perfect day; clear night; 8 a.m. coldest part of day.
11 8		-14.4	Fair; perfect day; a range of 54 2 to-day.

MAXIMUM and Minimum Temperatures, &c.—Concluded.

Date.		THERMOMETER READINGS.		Weather, etc.
		Maximum for day.		· · · · · · · · · · · · · · · · · · ·
19	911.	۰	0	
	9	39.2	- 3.8	Fair ; perfect day ; clear night.
	10	37 · 2	- 3.8	Fair; perfect day; clear night.
	11	37 · 2	- 2.1	Fair; perfect day.
	12	21.8	- 3.9	Cloudy; sleighing only on sheltered roads.
	13	33.3	- 7·9 - 0·8	Fair. Cloudy.
	15	36.9	13.8	Cloudy; fine day.
	16	35.3	2.3	Fair; fine sunrise; ice on Bow River 23\(\frac{1}{2}\) inches.
	17	33.3	24.0	Cloudy; snow during night.
	18	20.5	13.7	Cloudy.
	19	23.2	-14.4	Fair.
11	20	35.0	- 8.8	Fair; perfect day.
11	21	40.2	9.9	Fair; large solar halo; no sleighing.
	22	44.0	18.3	Fair; very fine day; robin heard; blow-flies about.
	23	46.1	12.0	Fair; fine day, fine night; large solar halo; last snowbird seen.
	24	49.7	18.4	Fair: very fine day; main road dry in places.
	25	46.9	29.9	Cloudy; fine day; light snow; Canada jays building on mountain.
99	26	46.8	23.0	Fair; very fine day; snow on sheltered roads only; ice on Lake
11	27	50.9	27.1	Minnewanka 30 in.; sap oozing on pines. Fair; main road dry about town; snow in patches; robin singing; very fine day.
**	28	47.1	36.4	Cloudy; catkins on some willows and aspen; poplars showing growth.
11	29	39.0	25.8	Fair; fine day; large flock redpolls.
	30	44.3	11.9	Fair; snow flurries; main road all dry; fine mild night.
	31	50.6	29.7	Fair; very fine day, but squally wind.

N. B. SANSON,
Observer.

No. 2 (B).

VISITORS AT THE PARK.

ANALYSIS OF NATIONALITIES OF VISITORS TO BANFF SPRINGS AND HOTELS.

List of bathers at Upper Hot Springs from April 1, 1911, to March 31, 1912.

Canada. United States. Scotland. England. Australia. Ireland. China. Germany. South Africa. Ceylon.	16,703 1,418 60 170 28 11 9 8
South America	1 18.414 1,230
Visitors at Cave and Basin from April 1, 1911, to March 31, 1912	19,644
Canada England Scotland Ireland Australia New Zealand South Africa India Ceylon Samoa Honolulu Fiji Islands United States Argentina China Japan France Germany Sweden Switzerland Norway	5.187 554 301 62 65 64 15 21 5 4 6 3 8.462 7 15 11 20 19 20 25 7

Number of visitors registered at the Banff Springs Hotel. 14,403 Note of nationalities not available.

Number of visitors registered at the Sanitarium Hotel, Banff, from April 1, 1911, to December 1, 1911.

(Hotel closed December 1, 1911 to March 31, 1912.)

Canada	4,300
United States	1,986
England	411
Scotland	109
New Zealand	203
China	19
South Africa	59
Australia	60
Japan	11
Denmark	3
India	1
Ireland	195
Holland	19
Germany	58
Chili	3
Italy	20
Switzerland	49
Austria	9
France	90
Phillipine Islands	3
Mexico	1
-	
Total	7,617

Number of visitors registered at the Alberta Hotel from April 1, 1911, to March 31, 1912.

Canada	5,110
United States	1,191
England	301
Scotland	190
Ireland	172
Sweden	15
New Zealand	78
Australia	16
China	38
France	9
Germany	4

Number of visitors registered at the Grand View Villa from April 1, 1911, to March 31, 1912.

Canada	 3,390
United States	
England	
Ireland	
China	
Scotland	
Australia	 73

	3 GEORGE	V., A. 1913
France		
Holland		
New Zealand		
Austria		
Mexico		5
Total	4.56	4

Number of visitors registered at the Mount Royal Hotel, 7,963. Note of nationalities not available.

Number of visitors registered at the Hot Springs Hydropathic Hotel, from April 1, 1911, to March 31, 1912.

Canada	2,001
United States	507
England	103
Scotland	90
New Zealand	15
Germany	37
Australia	59
Ireland	
Austria	29
-	
Total	2.944

Number of visitors registered at the King Edward Hotel, Banff, from April 1, 1911, to March 31, 1912.

•	
Canada 4	,202
	.079
England	55
Scotland	19
Ireland	63
Australia	16
New Zealand	8
South Africa	2
Korea	. 4
India	1
Belgium	1
France	2
Denmark	2
Germany	4
	
	401
Meals, excursionists	500

Number of visitors registered at Homestead Hotel from April 1, 1911, to March 31, 1912. Total, 1,000.

.. .. 6,901

Note of nationalities not available.

Number of visitors at Lake Louise Chalet from April 1, 1911. to March 31, 1912. Total 12,459.

- 10

Note of nationalities not available.

SUMMARY.

Banff Springs Hotel 1-	1,443
Sanitarium Hotel	7,617
Alberta Hotel	7,834
Grand View Villa	1,564
Mount Royal Hotel	7,963
Hot Springs Hydropathic Hotel	2,944
King Edward Hotel	6,901
	1,000
	2,459
Summer cottagers	3,000
Estimated excursionists not registered	5,000
Total	3,725
Season 1910-11	3,494
	0.231

No. 2C.

THE ALPINE CLUB OF CANADA.

The Alpine Club House was open all the season and many tourists who stayed more than a day in Banff found their way to see it and to enjoy the magnificent views from its verandals. The secretary continues to be the recipient of endless questions concerning the mountain regions, which are answered to the best of his ability. In fact, the average traveller seems to regard the Alpine Club House as a bureau to give every kind of information and to receive every possible kind of complaint, whether concerning hotels, packers, railway arrangements, the management of the parks and even the government of the country.

A club party under Mr. Jas. F. Porter, of Chicago, camped for some time in the neighbourhood of Baker Peak, climbing and exploring all the adjoining country. The head of the Red Deer Valley was also explored and camp was then removed to the lower of the two lakes west of Fossil mountain, a miniature Lake Louise. Here Pika Peak and Ptarmigan Peak were attempted and some time spent in the study of the fossils of the neighbourhood, which appeared to be similar to those in the wellknown fossil bed on Mt. Stephen. In the course of their wandering several new lakes were discovered. A detailed account of the expedition will appear in the 1912 issue of the Canadian Alpine Journal.

Another club party, including Mr. L. L. Delafield, of New York, and Mr. L. M. Earle, of Liverpool, England, also a member of the English Alpine Club, climbed in this same neighbourhood and made what are believed to be the first ascents of Mt. Richardson and Pika Peak, and Ptarmigan Peak by a new route.

Other independent parties of club members camped in the neighbourhood of Paradise Valley and climbed Mt. Temple, Aberdeen and other adjacent peaks.

The members staying at the Club House were drawn from the following places:—

IN CANADA.

British Columbia.-Alberni, Golden, Keremeos, Sidney, Vancouver, Victoria.

Alberta.—Brant, Calgary, Camrose, Carbon, Cowley, Edmonton, Eyremore, Happy Hill, High River, Leduc, Lethbridge, Nokomis, Strathcona.

Saskatchewan.—Prince Albert, Saskatoon, Yorkton.

Manitoba.—Winnipeg.

Ontario .- Brantford, London, Port Colborne, Toronto, Woodstock.

Quebec .- Montreal.

IN THE UNITED STATES OF AMERICA.

California.—Ocean Park.

Indiana.—Lafayette.

Massachusetts.-Boston.

New Jersey .- Summit.

New York.—New York, Rochester.

Pennsylvania.—Bryn Mawr, Philadelphia.

Washington.—Spokane.

OVERSEAS.

England.—London.

Austria.—Vienna.

No. 2D.

STATISTICAL SUMMARY OF INFORMATION RE ROADS, TRAILS, SIDE-WALKS, WATER AND SEWER SYSTEMS AT BANFF.

MILEAGE OF ROADS AND TRAILS, ROCKY MOUNTAINS PARK.

Roads.	Mi es.
Kananaskis to Banff	_
" to Sundance Canyon	4
" to lumber camp on Spray River Tunnel Mountain Drive	
To Lake Minnewanka	
Laggan to Lake Louise	3
Lake Louise to Moraine Lake	
Loop Drive	7
Canmore Station to Mines	
Total	96.5
Trails.	
Spray to Mt. Assiniboine	
Bow Summit Trail	30
Banff to Brewster Creek via Sundance	
Cascade Trail	
To Lake Minnewanka	14
Simpson to Simpson Summit	14

TELEPHONE SYSTEM AT BANFF.

The telephone system at Banff was installed in 1907. It comprised originally 27 miles of lines built at a total cost of \$5,582. Since that date a number of extensions have been made, bringing the number of lines now constructed up to 343 miles. This includes the following lines:

To	Bankhead	5	miles	connecting	3	phones.
	Lake Minnewanka			"		66
To	the Observatory Sulphur Mountain	4	66	44	1	44
To	Upper Hot Springs	3	"	cc	1	"
To	Hydropathic Hotel	3	66	"	1	66
Τo	Grand View Villa and Alpine Club	3	66	"	2	"
To	Cave and Basin	1	66	"	1	66

Business phones, 35. Private phones, 19.

The Banff system is also connected with the Alberta long distance system.

SUMMARY OF WATER MAINS.

Town.

Street.	Mains.	Hydrants.	Valves.
	Ft.	No.	No.
Sanff Ave.	4,800	11	11
eaver.	1,700	5	3
Iuskrat	1,475	3	2
tter	1,475	3	2
ear	1,475	3	5
uffalo	1,400 $1,475$	2 A	9
ynx	1,300	5	4
quirrel.	650	$\frac{1}{2}$	$\dot{2}$
lk	325	1	
Iarten	600	1	1
Volf	1,850	6	8
Totals	18,525	46	47

Villa.

Avenue.	Mains.	Hydrants.	Valves.
	Ft.	No.	No.
Cave Spray.	1,200 2,925	2 7	4 7
Totals	4,125	9	11

SUMMARY OF SEWERS.

Town.

Street.	Mains.	Manholes.
Banff Ave	Ft. 1.400 1,400 1,650 1,400 1,050 1,400 1,575 825 675	No. 5 6 7 3 5 5
Marten Wolf Totals.	$\frac{600}{175} \\ -12,150$	37

Villa.

	Mains.	Manholes.
	Ft.	No.
River -From point opposite Sanitarium Hotel to Manhole where trunk sewer crossed Bow River	500	- 1
above Falls	1,450	6
Total	1,950	7

STATEMENT OF CINDER WALKS CONSTRUCTED.

Town.

Street.	From	To.	Side.	Length.	Width.
Otter Otter Muskrat Beaver Buffalo Bear Lynx Squirrel Banff Ave	Cariboo. Buffalo. Buffalo. Bear Buffalo. Cariboo. Cariboo. Lynx	Wolf Wolf Wolf Otter Cariboo. Wolf C, P. R. Station. Elk	West. West. East and West. North East. West. East. South-east.	Feet. 1,344 600 1,344 2,688 1,216 725 600 1,800 627 1½ miles	Feet. $ \begin{array}{c} 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ 4\frac{1}{2} \\ 4\frac{1}{2} \\ 6 \\ 4\frac{1}{4} \\ 6 \end{array} $
Total			••	3 miles, 1,008 yds.	

Villa.

Avenue.	From.	То.	Side.	Length.	Width.
CaveSpray	Bow Bridge Bow Bridge	Cave and Basin C. P. R. Hotel	EastEast		Feet. 6 6

STATEMENT OF PLANK WALKS.

Avenue or Street.	From.	То.	Side.	Length.	Width.
Banff		Wolf Beaver St Bow Bridge			Feet. $\frac{6}{4\frac{1}{2}}$ $\frac{4}{4\frac{1}{2}}$

STATEMENT OF CEMENT WALKS.

Avenue or Street.	From.	То.	Side.	Length.	Width.
Bauff	Buffalo	Wolf	East and West	Feet. 1,425 475 yds.	Feet.

No. 3.

REPORT OF THE SUPERINTENDENT OF YOHO AND GLACIER PARKS.

FIELD, B.C., April 1, 1912.

The Chief Superintendent of Dominion Parks,
Edmonton, Alta.

SR,—I have the honour to submit herewith my third annual report as Superintendent of the Yoho and Glacier parks for the fiscal year ending March 31, 1912.

YOHO PARK.

The spring of 1911 brought with it the need of the usual amount of repairs to roads, bridges and trails. All roads were raked clear of stones, the ditches cleaned out and the culverts repaired. Each bridge was inspected and repaired wherever necessary. The trails were gone over and cleared of fallen timber and boulders. The streets in the town of Field were raked; the sidewalks were repaired and any trees planted during the previous year which were found dead were replaced with others of the proper size.

A tool-shed and stable combined was erected on Lot No. 4, in Block 1, Field Townsite, thus providing stable room for the horses of the Superintendent and Fire warden as well as a storage for tools, material. &c., used in connection with construction work in the Yoho park.

The small bridges in the vicinity of Field, nine in number, were railed on each side with peeled poles, adding to their appearance as well as to the safety of the traveller.

One dozen additional rustic seats were placed at different points along the Yoho Valley and Emerald lake drives. The material used in the construction of these seats as well as that used in the construction of all railing was peeled and painted.

A carriage road was built connecting the Natural Bridge with the Emerald lake drive at a point near the three-mile post, a distance of three-quarters of a mile, thus completing a return drive, leaving the last named at the two-mile post, passing the bridge and again meeting the Emerald lake drive as above stated at the three-mile post.

The work of railing the Natural Bridge was continued from last year and fifty yards of heavy railing were added to it and to the steep embankment in the immediate vicinity. The foot paths in close proximity to the bridge were gravelled and rustic seats were placed at different points where the scenery appeared most grand.

I would respectfully suggest that a small pavilion be erected at this point in the near future for the reason that it is fast becoming a popular place for pic-nickers. I might add that the Canadian Pacific Railway Company saw the need some years ago of a building of this kind here and had a rustic shelter erected. This has, however, become entirely inadequate.

A trail was constructed from the Natural Bridge to a canyon some distance down the Kieking Horse river, the beauty of which equals, if it does not surpass, that of the Natural Bridge itself. Railing was also placed along this canyon so that it may now be approached with safety.

Starting at a point on the Yoho Valley drive, an approximate distance of three and one-half miles from Field a carriage road was built to connect with the old grade of the Canadian Pacific railway which was abandoned by the company upon the completion of the spiral tunnels, along which road three hundred and fifty yards of railing were placed. The said grade was converted into a carriage road by removing the old railway ties as well as from six to eight inches of surface composed of a soft material. A considerable amount of work was also necessary to obtain a crossing over the new railway grade at Yoho station which was done by hauling in rock and the above mentioned soft material taken from the road surface. The bridges on this grade, four in number, were covered with three-inch planks and railed on each side. This completed a drive road from Field to within a few minutes' walk of Lake Wapta, an approximate distance of eight miles.

This road should, in my opinion, be continued next year to Stephen, the eastern boundary of the Yoho park, and I would also respectfully suggest that funds be provided in the appropriation for Rocky Mountains park to make the connection from this point to Laggan station; thus connecting, when the Banff-Laggan road has been completed, the three principal tourist points in the Rocky Mountain range and also allowing Field access to the Banff-Windermere and Banff-Calgary motor roads.

The Yoho Valley carriage road was continued to a point about three and one-half miles beyond the Takakkaw Falls. This completed approximately sixteen miles of this road all of which is in excellent condition for carriages. I may say here that this carriage road is, I think, at present of sufficient length for one day's drive and until such time as proper stopping places are provided in the valley I would recommend that new work in this connection be suspended.

A trail was built from Hector station on the line of the Canadian Pacific Railway to a meadow at the end of Sherbrooke lake, a distance of four and a half miles, at which point the Alpine Club of Canada held their sixth annual camp.

The completion of these roads and trails has made accessible those points of particular natural beauty which are bound to become more and more popular as they

become better known. I furnish below a partial list of the different points of interest in Yoho Park with their approximate distance from Field:—

	Miles.
* Fossil Beds	$1\frac{1}{2}$
Natural Bridge	$2\frac{1}{2}$
Natural Bridge Canyon	$2\frac{3}{4}$
Mt. Stephen Glacier	. 3
Summit Lake	. 3
Emerald Lake	. 7
Takakkaw Falls	. 12
Laughing Falls	. 161
Twin Falls	
Yoho Glacier	. 18
Lake O'Hara (from Hector)	. 7
Lake McArthur (from Hector)	

I hope that the regulations governing other Dominion Parks will, in the near future, be made to apply to Yoho Park and thus provide a system of game protection worthy of this park, the natural breeding ground for almost every species of large game native to the Rockies.

Some system of drainage should be provided for the village of Field which could be installed at a comparatively small cost. Already the Canadian Pacific Railway Company have installed a water system for supplying their hotels and shops from which many of the residents have been allowed to take their supply. Considering this fact it follows that a much larger quantity will be used than if taken from a well and proper drainage will be rendered impossible without installation of a sewerage system.

I would again respectfully suggest that the old wooden bridge over the Kicking Horse at Field be replaced next year by a steel bridge of ample width with provision for foot passengers.

THE ALPINE CLUB OF CANADA.

Of the six annual camps held by this club, three of this number have been held within the limits of the Yoho Park which speaks well for this region as an interesting ground for the mountaineer of some experience who glories in a 'good stiff climb.' With your permission I should like to incorporate in this report an extract from a report prepared by the secretary treasurer of the Alpine Club of Canada, which reads as follows:—

'The Alpine Club of Canada continued its work of bringing the mountain regions of the country to the notice of the people of Canada and of other nations. The Annual Camp was held in the meadow above Sherbrooke lake in the Yoho Park. The new trail to the lake, recommended by the superintendent, and constructed in the early part of last year was much appreciated and will render future access to one of the most charming spots in the mountains easy and pleasant. A subsidiary camp was placed at Ross Lake to facilitate the ascent of Pope's Peak, a most interesting climb for mountaineers of some experience. The lake is easily reached both from the Laggan-Hector trail and the railway. It is about three miles distant from Hector station.

'One hundred and fifty-four people were placed under canvas and the majority of them stayed for the life of the camp. A synopsis of places represented by provinces, states and countries is here given.

'IN CANADA.

'British Columbia: Alberni Chilliwack, Golden, Nanaimo, Revelstoke, Sidney, Vancouver and Victoria.

Alberta: Banff, Brant, Calgary, Carbon, Cowley, Evarts, Eyemore, Fernie, High River, Lethbridge, Macleod, Nokomis and Okotoks.

Saskatchewan: Prince Albert and Regina.

Manitoba: Brandon and Winnipeg.

Ontario: Toronto and Woodstock.

IN THE UNITED STATES OF AMERICA.

'California: Ocean Park.

Illinois: Galesburg.

Massachusetts: Boston.

New Jersey: Summit.

New York: Brooklyn and New York.

Ohio: Dayton.

Oregon: Portland.

Pennsylvania: Gladwyne, Glen Olden and Philadelphia.

Washington: Seattle and Spokane.

OVERSEAS.

' England: London and Bude.

Switzerland: Berne, Grindelwald, Interlaken and Zurich.

'The following Mountaineering Clubs were represented: The Alpine Club (England), the American Alpine Club, the Swiss Alpine Club, the Appalachian Mountain Club, the Mazamas, the Mountaineers.

'Sixty-eight passed the graduation test for full membership upon Mt. Daly

and Pope's Peak.

. 'The Government of British Columbia in response to the Club's invitation delegated Mr. W. W. Foster, the Deputy-Minister of Public Works, to represent it in Camp. He expressed the great appreciation of his Government of the publicity work already done by the Club, and its ambition to open further fields. Until one, he said, had actually lived in the camp for a day or so, it was impossible to realize the enthusiasm and widespreading influence of a wonderful organization.'

SILVER-LEAD MINE.

The Monarch Mine which was first operated in 1882, and which has many times since that date been closed and opened by different companies, has again shown signs of life and now bids fair to become one of the largest silver-lead mines operating in British Columbia. A concentrator has been built in the immediate vicinity

of the mine so that the ore may be separated before shipment to the smelter. Located as it is on the almost perpendicular face of Mt. Stephen, approximately twelve hundred feet above the railway, it is, I think, one of the most interesting sights in this locality.

GLACIER PARK.

About four miles of the proposed carriage road from Glacier to the Nakimu Caves were completed during the year. In the construction of this portion of the drive a bear-den slide was encountered, which could not be seen at the time that I estimated the cost of its construction, which resulted in retarding progress to some extent and the completion of one mile less than the entire distance estimated in my last annual report. Enough has been completed, however, to make an excellent drive winding as it does well above the famous loop of the Canadian Pacific Railway in plain view of the great and other smaller glaciers. I hope the Government will undertake during the next fiscal year the continuation of this drive to a point in the Cougar Valley immediately below the Caves from which point a suitable trail, with rustic steps where the incline is very steep could be constructed at a very small roost to allow access to the Caves.

A tool-shed was erected on this drive, a short distance from Glacier Station, for the storage of tools, material, &c., purchased in connection with construction work in this park.

Some repair work was done in the interior of the Caves in the way of strengthening the walks and adding hand railing wherever it was considered necessary.

The trail leading from the Glacier House to the Caves thence to Rogers Pass was cleared of fallen timber and mud slides.

In conclusion I desire to acknowledge the faithful work done by the foreman who worked under my direction during the last year.

I am, sir,

Your obedient servant,

G. E. HUNTER,

Superintendent.

MILEAGE OF ROADS AND TRAILS IN YOHO PARK.

Roads.

Γ	ames.
Yoho Valley Drive	16
Hector Drive	
Emerald Lake Drive	ī
Branch Drive to Natural Bridge and return	$1\frac{1}{2}$
Ottertail Drive	6
Total	$35\frac{1}{2}$

Trails.

<u> </u>	1 iles.
From Field over Burgess Pass to end of Yoho Valley and	
return	25
Hector Station to Sherbrooke Lake	5
Hector Station to Lake O'Hara and Lake McArthur	10
From Emerald Lake Road to the Amiskwi river to the N.	
boundary of the old park	
Ottertail Drive to Leanchoil	
Leanchoil to southern boundary	20
Branch trail up Ice River	
Branch trail to Fish Lake	
Hector Station to Stephen	2
Total	57

No. 4.

REPORT OF THE SUPERINTENDENT OF BUFFALO PARK.

WAINWRIGHT, ALBERTA, April 1, 1912.

Howard Douglas, Esq., Chief Supt., Dominion Parks. Edmonton, Alta.

SR,-I beg to submit for your consideration my second annual report as Superintendent of Buffalo Park for the fiscal year ending March 31, 1912.

Owing to the almost continuous rains during the past summer and the difficulty which we had in securing teams and equipment at the proper time, the work in the park was not carried on as we would have liked.

The evergreen trees set out along the drive to the park and around the different grounds last year are thriving very well, though naturally with this class of trees the growth is very slow. A man was kept continually cutting weeds and cultivating around these trees during the early part of the summer.

The grounds around the superintendent's house were broken up and thoroughly cultivated for the purpose of planting with shrubs and grasses in accordance with a plan prepared by Norman M. Ross, of the Forestry Branch of the Interior Department.

The cottage and barn erected at the winter-quarters last spring have added greatly to the appearance of the place and are very much appreciated by the men stationed there. The old shack was moved and rebuilt and is being used at the present time as a bunk house by the teamsters and extra men, and the old stables were overhauled and are used for a storehouse for machinery and implements. I had a well sunk convenient to these new buildings which furnished an ample supply of water for both places.

The telephone line was extended to connect with the Hardisty entrance to the park and has been of great service on more than one occasion.

Under instructions from your office I had a corral built for the purpose of coralling and crating buffalo or any other animals we may have to ship from here to other parks. This corral was located in the small enclosure adjacent to Wainwright.

The water in the first well sunk at headquarters not being good we had to sink another one, and to get the supply needed we had to go to the foot of the hill on

25 - v - 4

which the house is situated. As this was some four hundred and fifty feet from the house it was found necessary to instal an engine and pump to force the water up to

the house and grounds. This has worked out very satisfactorily.

During the latter part of June and the first part of July the one hundred and seventy miles of fire-guard around and across the park were all thoroughly cultivated, but owing to so much rain the weeds grew very fast and before fall we had to plough over a large portion of the guards to make the park safe from fire. Fortunately they were not needed, as we had not a prairie fire in the neighbourhood of the park last fall. Since it takes a great deal of time to work over the guards into any kind of decent shape with the discs. I have decided that in the future it will pay better to plough and drag the guard each year, as this can be done as cheaply and will make a more satisfactory job of it.

We were rather unfortunate in our hay-making during the past season, as owing to so much rain and the boggy nature of our meadow it was almost impossible to make hay at all, and though the ditches put through the meadow a year ago were quite sufficient to carry off the water in an ordinary year, they proved entirely useless last season so that where we should have got eight hundred tons of hay, we only got about three hundred and fifty. If it had not been that we carried over some eight hundred tons of old hay from the year before we would have been up against it this winter. To guard against this I would suggest that as early as possible next spring we break up about three hundred acres and crop it with oats to be used as feed for the animals, and then any year that we get a good supply of hay from our meadow we can thresh our oats and have our seed and feed for the year following.

ANIMALS IN THE PARK.

My last report showed something over 800 buffalo in the park. With a couple of small shipments from Montana and the natural increase for the year we have now close to a thousand head, all in a thriving and healthy condition. The increase for the year (172) is very gratifying, with a very small loss, 9 head. This loss has been mostly old bulls, which no doubt have been killed off by the younger bulls during the season when their hide is of no value. If the suggestions made in my last year's report were adhered to and a number of these killed off in the fall when they were in their best fur it would save considerable in feed, besides, their robes would be worth something where now they are a total loss.

The moose imported last year have done very well; as they were only yearlings

there was of course no increase.

The elk have done very well. With a shipment of seven head from Montana and a natural increase of four we have now eighteen head, all in beautiful condition.

The wild deer enclosed when the park was fenced evidently have increased as one of the riders saw twenty-five in one bunch last fall. I would estimate at least fifty head in the park now.

Among the antelope I can report no natural increase though we have now fourteen head, having shipped in what they had left at Banff, besides a shipment of eight head from Brooks station on the C.P.R.

The animals now in the park are as follows: Buffalo, 994, increase this year, 172,

loss, 9; moose 11; elk 18, increase 4; deer, estimated, 50; antelope 14.

VISITORS TO THE PARK.

Last year I reported some eighteen hundred people having visited the park; this record has been exceeded already this year by nearly three hundred, the gate-keeper's diary showing 2,087 persons having passed through the gate in the past nine months. Several of these have been heard to express their delight at finding such a vast herd of wild animals in such natural surroundings.

The feathered game, evidently aware that they are protected, are gathering into the park in great numbers, and the country immediately surrounding the park has

already proved a mecca for the sportsman.

Even the coyote, the most miserable of all animals, finding a certain amount of protection within the confines of the high wire fence is becoming a nuisance and a menace to the birds and small game, and I think it would be desirable to offer a bounty for his destruction.

In conclusion I am pleased to be able to state that there have been no infractions

of the Park Regulations during the past year.

I am, sir,

Your obedient servant,

EDWARD ELLIS,

Superintendent.

No. 5.

REPORT OF THE SUPERINTENDENT OF ELK ISLAND PARK.

ELK ISLAND PARK, LAMONT, ALBERTA, April 1, 1912.

Howard Douglas, Esq., Chief Superintendent Dominion Parks, Edmonton, Alta.

SR,—I have the honour to submit my second annual report as Superintendent of Elk Island Park.

Owing to the exceptionally fine weather the buffalo left their winter quarters early last spring and were able to range out from the first week in March, thereby

enabling us to carry over about forty tons of hay.

In my last report I mentioned having the material placed on the ground for the erection of a fence across the park, which would keep the buffalo on the open land. As soon as the frost was out of the ground last spring, three miles of fence were built along the lake shore and connected with the main fence on the south and west sides. This enclosure forms an extensive pasture for both the buffalo and moose and I am pleased to state that they have done well during the past year, and can always be seen by visitors.

The increase in buffalo numbered thirteen, with no loss. A cow, which had become disabled, was shot about the first of December, when her fur was in excellent condi-

tion and was disposed of according to instructions.

Last summer two moose calves were brought to the park and raised by hand until they were old enough to run at large. Later nine moose were shipped in from Banff and since the New Year three which were secured at Lesser Slave Lake, have been added to the number, making a total of fourteen. As stated above these are in the same pasture as the buffalo.

Last spring, after the hills had become bare, with still enough snow in the bush to prevent danger, a fire-guard was burned the whole way round the park and in this way fire was prevented from getting into the enclosure as it had done other years.

Early last fall a mile of fire-guard was ploughed along the west side. This had been ploughed before and makes about four miles of a fire-guard protecting the pasture and winter feed.

During the winter the grounds between the superintendent's house and the lake were cleared of all dead trees and brush, adding greatly to the appearance of the place.

The elk and deer and also what moose were in the park previous to 1911 are running at large in the timbered part of the park and when on my tours of inspection through this area I often see them. Last spring I counted seven young elk, which shows that the increase is satisfactory. The estimated number of elk at the present time is thirty-five and deer about forty-five.

The visitors for the year numbered nine hundred and ninety-eight, which was a decrease, but I might add that this was owing to such wet weather and to the bad roads during the summer. It would be well if the Provincial Government of Alberta would do something towards the improvement of the roads in the vicinity of the park.

The number of animals in the park at the present time is as follows: —

Buffalo	19
Elk, estimated	
rn . 1	1 50
Total	159

In conclusion I wish to express my appreciation of the valuable support received from yourself and other officials in connection with the parks in enabling me to carry out my work.

Your obedient servant,

ARCHIBALD COXFORD,

Superintendent Elk Island Park.

No. 6.

REPORT OF THE SUPERINTENDENT OF WATERTON LAKE PARK.

WATERTON MILLS, ALBERTA, April 1, 1912.

The Chief Superintendent of Dominion Parks, Edmonton, Alta.

SIR,—I have the honour to submit this my annual report in matters pertaining to the Waterton Lake Park,

In writing of the park it is rather difficult to know just how much land and water there is within its boundaries. In the latter part of July, 1911, we learned of the reduction of its area, all the lakes and several of the mountains of great interest being cut out, a matter of much regret and a step extremely unpopular with the people of Southern Alberta.

It was hoped that instead of a reduction there would be an enlargement of this natural game breeding ground which adjoined the U. S. Glacier Park on which thousands of dollars are being expended, miles of good roads built and even Swiss cottages put up in desirable places for the use of tourists, 40,000 of whom are expected next summer.

It is scarcely necessary to revert to the large sums that people of this class spend in their outings, beside their probable investment in real estate, &c.

GENERAL DESCRIPTION.

Previous to the reduction the park contained 54 square miles, six along the international boundary and nine miles in a northerly direction, possessing many attractions for tourists, the lover of nature and the tired man of business who is confined to the office the greater part of the year.

LAKES.

The lakes, of which there are three, are connected; the upper or first lake is about nine miles long and approximately 1½ miles wide, and 300 feet deep. It is traversed by the international boundary line, nearly one-half of the lake being in Montans. The second lake is about two miles long by a mile wide and 60 feet deep. The third lake is one and one-half miles long, one mile wide and 25 feet deep. The Waterton river flows out of this lake.

FISH.

All of these lakes contain numbers of trout, some of which (Mamaycush) grow to a large size; a few have been taken that weighed 45 and 50 pounds each. Last summer one was caught that turned the scales at 25½ pounds. There are also pike and grayling. No netting has been allowed for some years.

LOTS.

In November, 1910, Villa lots were surveyed by Mr. W. F. O'Hara, D.L.S. Lots 1, 2 and 3 in Block 4 are occupied by Mr. J. F. Hazzard who has built a pretty little hotel. Numbers 3 and 4 in block 6 are occupied by Christian F. Jensen who has an hotel and runs an automobile for passengers to and from Cardston. Applications have already been received for 13 other lots.

VISITORS.

There were a number of visitors last season but many were deterred from coming owing to the prevailing wet season and the height of the creeks and rivers.

BOATS.

Mr. Hazzard has a fine 4 H.P. gasoline launch and several row boats for hire. Dr. O. D. Weeks, a resident of Cardston has a nice little launch of 1½ H.P. (private) and Mr. Jensen has a number of row boats. If the roads are improved we will have autos from Macleod (60 miles) and Pincher Creek (40).

ROADS.

In the latter end of August, 1911, a wagon road was begun from Block 6 to Cameron Falls creek which, with the bridge across the same, was completed by the 13th of November, when all work had to be stopped owing to the heavy snowfall. And here, I would respectfully suggest that, owing to the early snowfall and the impossibility of doing any work late in the autumn, it would be advisable to commence any desired improvements early in the summer, more especially as there is a great difficulty in obtaining men during having and harvest.

TRAILS.

A trail to Lake Bertha, a beautiful spot in the high mountains is much wished for, also a trail up Cameron Falls creek to Oi¹ City, and should the park be enlarged, a trail on the east side of the lakes to the United States boundary line will be required.

BRIDGES.

Work was started this spring on a bridge over Pass Creek which we hope to see finished before high water. This bridge will be much appreciated by the people of the Pincher Creek district, a great many of whom have applied for building villa lots, and who will build early this summer. In high water this creek is a rapid mountain torrent. Last September two gendlemen from Cardston and the writer very nearly lost their lives here owing to the upsetting of a light wagon and several parties were held up for many days by the freshet.

THE KOOTENAY PASS.

A portion of the park is or was in the Pass where there is a trail that has been used by the Indians for many years. There is now a rough wagon road over the summit to British Columbia and Montana for an approximate distance of one hundred and twenty-five miles, with an elevation of 7,100 feet at the water-shed where there is a celebrated fishing place, Willed lake, found and called so by the writer many years ago. There is also splendid trout fishing in the Flathead river.

MINERALS AND METALS.

At many places close to this road petroleum seepages exist, and much money has been expended in the endeavour to find oil in paying quantities. Holes have been drilled to 1,700 feet. The Pincher Creek Oil Co. did some work on their claims last summer. Float copper is abundant. A claim just outside the old park limits has been prospected a little but so far only low grade ore. 10 per cent, has been found. Float cannel coal is found on the lake shores.

GAME.

This portion of the Rocky Mountains has always been celebrated for its game; larger sheep heads have been obtained in this vicinity than elsewhere and since the creation of this park and the strict enforcement of the regulations by the officers employed, the increase is notable. Several moose have been tracked and some seen. This winter, mountain lions and wolves have killed some deer but we hope to be able to exterminate the former in one way or another.

PATROL.

Constant patrols are made; indeed, they are highly necessary especially in summer when the danger from fire is very great owing to the prevailing high south winds and the large numbers of campers.

FUTURE REQUIREMENTS.

A fire-guard should be ploughed close to the base of the mountain and telephone lines established. These would greatly assist the Forest Rangers. I have just forwarded a long list of persons desirous of having a telephone established to the Chief Superintendent. A bridge or ferry over the Waterton River is urgently required and I beg to call your attention to the fact that there is no bridge here

for forty miles although there are three on the Belly river in the same distance. The high water lasts from six weeks to two months during which time the river is unfordable; there can be no communication between shores except by rowboat; horses have to swim; several are drowned each year and three lives have been lost on the ford. A ferry could be put in easily but this ford is outside of the present park lines.

ENLARGEMENT OF THE PARK.

In conclusion I may add that the enlargement of this Park is greatly desired by the people of the district as also by all sportsmen here and on the United States side. The Campfire Club of America is very anxious to co-operate with any action taken for the protection of our fast disappearing game. There is a vast area here that seems to be useless for any other purpose.

I have the honour to be, sir,

Your obedient servant,

JOHN GEORGE BROWN,

Forest Ranger in charge Waterton Lake Park.

No. 7.

REPORT ON THE ST. LAWRENCE ISLAND PARKS.

DEPARTMENT OF THE INTERIOR, DOMINION PARKS BRANCH,
OTTAWA, April 1, 1912.

To the Commissioner of Dominion Parks, Ottawa.

SIR,—I beg to submit my second annual report in connection with the St. Lawrence Islands Parks.

These parks, located as their title suggests, on the St. Lawrence river, constitute the only eastern reservation in the series of Dominion Parks, all the others lying in the far west. There are few points of comparison, beyond those of beauty and charm, between this little island reservation in the east and its vast sister reservations in the west. There are, however, many points of contrast as one recalls the large area of western parks, with their wealth of lakes, streams and mountain scenery and their forests of pine and spruce which afford sanctuary for almost every form of animal life incidental to the west. Yet each of these islands, though but a few acres in extent, fulfils the park idea as truly in its particular setting as the immense mountain reservations in the west; that is, they are places of public resort for out-door recreation, rest and pleasure. And to the hungry fisherman, canoeist, or launch party, the tired city dweller or the Sunday school excursion, excluded from other islands in the river by private ownership, these islands are a great convenience. They are situated at intervals over a stretch of thirty miles of river; most of them are beautifully wooded and display, within their limited areas, a suprisingly large variety of trees.

These islands have been made available to the public by the construction of picturesque pavilions, convenient whards, and landings and by furnishing a generous supply of tables, benches, stoves, &c. It has been the work of this Branch, during the past year, to maintain the equipment on each island in a serviceable condition and to keep the grounds clean and attractive. Sundry repairs have been executed at

different points, and a wharf, suitable for skiffs and launches, has been built at Aubrey island. Open-air stoves have been built on three of the unimproved islands as a discouragement to promiscuous fire building, and additional stoves have been built on the other islands where necessary.

Only one of the islands is without a good growth of trees, namely, that at Mallorytown Landing, and this is because the island is nearly all rock. It is hoped, however, to have a number of trees planted there in the near future which in time will do much to relieve the somewhat barren aspect of the surroundings.

I made a trip of inspection over the islands last spring and arranged with the

different guardians for carrying on the work.

The annually increasing number of visitors who frequent these islands is, perhaps, the best expression of public appreciation that can be desired.

Attached is a tabular statement giving certain information in connection with

each island in the reservation.

Your obedient servant,

FRED. H. BYSHE,

Superintendent.

TABULAR statement in connection with the Thousand Island Park.

Name.	Area.	Location.	Nature of Improvements.
	Approximate.	Approximate.	
Aubrey	15 acres	2½ miles W. of Gananoque.	1 launch wharf, 1 pavilion (No. 9), 2 stoves, 2 outclosets, 4 tables, 2 garbage cans, 8 benches, (Marine light.)
Bean Rivage	10 to 11 acres		Steamboat and skiff wharves, 1 pavilion (No. 1), 4 stoves, 2 outclosets, 4 tables, 14 benches, 2 garbage cans.
Gordon	16 to 20 "	2 miles S.E. of Gananoque	Steamboat and skiff wharves, 1 pavilion (No. 2), 3 stoves, 2 outclosets, 4 tables, 10 benches, 2 garbage cans.
Camelot	25 "	3 miles S. E. of Gananoque.	1 stove.
Endymion		3 miles S. E. of Gananoque.	1 stove.
Georgina,	23	9½ miles E. of Gananoque.	On W. end steamboat and ski'f wharves, 1 pavilion (No. 3), 2 stoves 2 closets, 4 tables, 12 benches, 2 gar age cans. On E. end skiff wharf 3 stoves, 2 closets, 4 tables, 14 benches, 2 garbage cans.
Constance		Close to Georgina	1 stove.
Grenadier			Steamboat wharf, 1 pavilion (No. 5), 2 stoves, 2 closets, 4 tables, 12 benches, 2 garbage cans.
Mallorytown Landing.	4	12 miles W. Brockville (part mainland)	Steamboat wharf, 1 pavilion (No. 6), 1 stove, 2 closets, 2 tables, 7 benches, 1 garbage can.
Adelaide	11 "	14 miles S. of Mallorytown Landing	
Stovin	5 n	2½ miles W. of Brockville.	Steamboat and skiff wharves, 2 pavilions (Nos. 7 and 8), 5 stoves, 4 closets, 6 tables, 16 benches, 6 garbage cans.



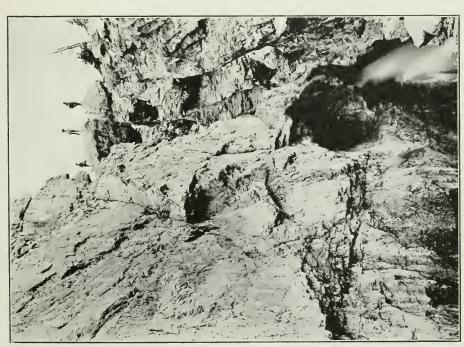
Roche Miette, Athabaska River in foreground, Jasper Park.











Hoodoos in Hoodoo Valley, Yoho Park.





Moraine Lake. Valley of the Ten Peaks, near Laggan.





Elk in Banff Paddock.

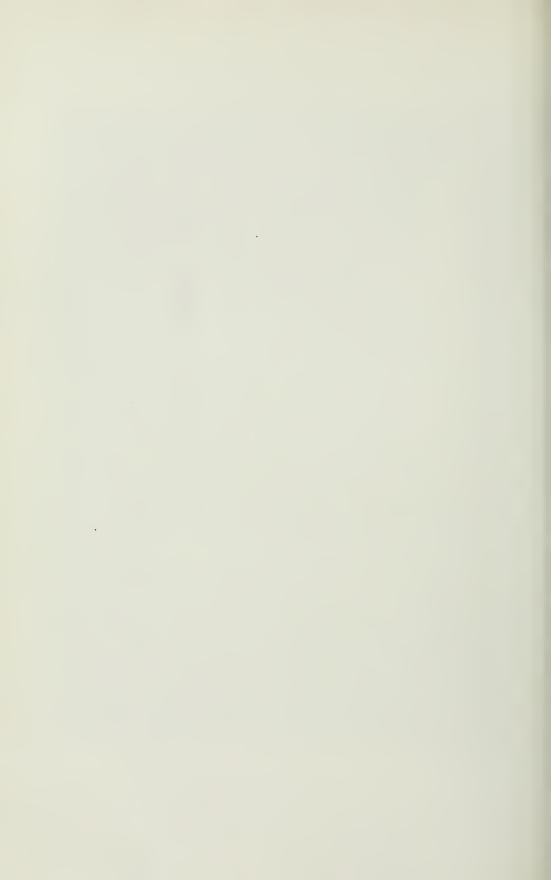


Bow River, from near junction of Spray, Rocky Mountains Park.



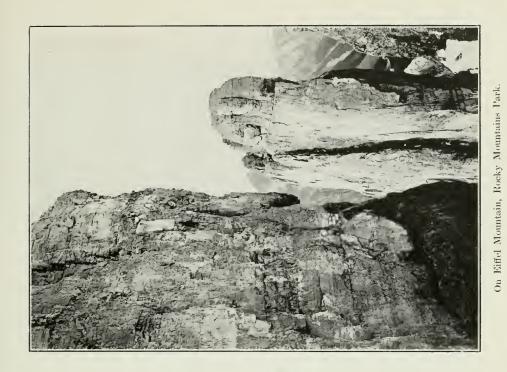


Lake Agnes, Mirror Lake and Lake Louise, near Laggan, Rocky Mountains Park.



Lake Louise Chalet near Laggan, Alta.







Summit of Mt. Hector, Rocky Mountains Park.







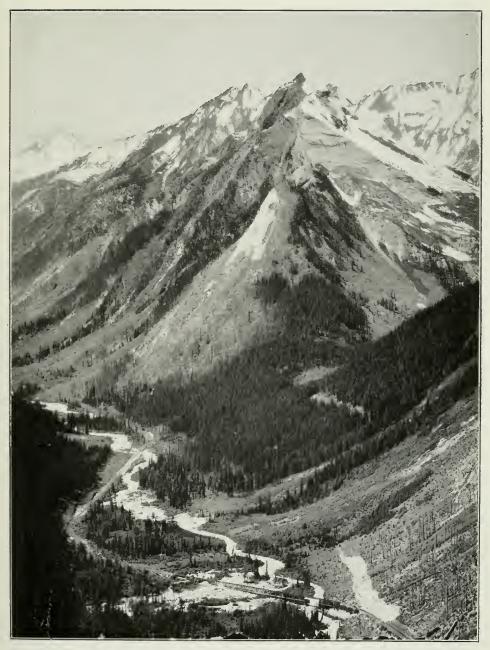
Field, B.C., Yoho Park.



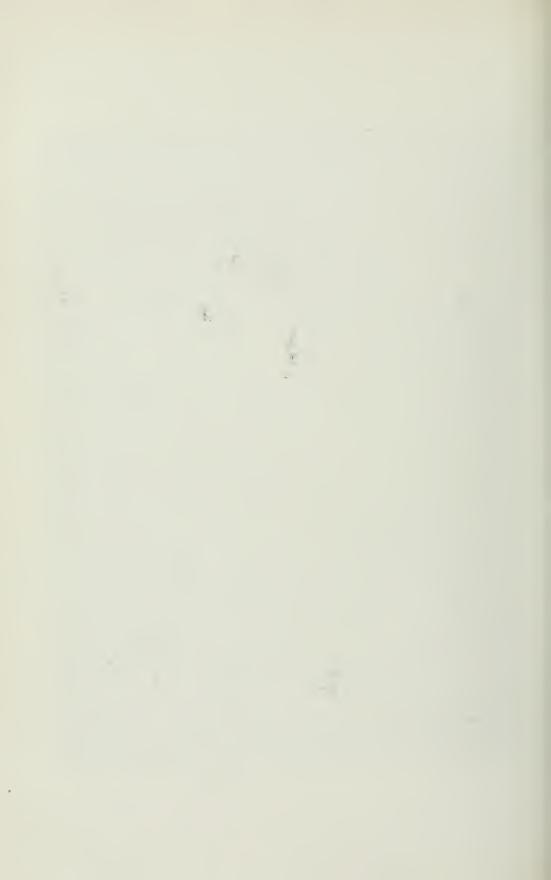


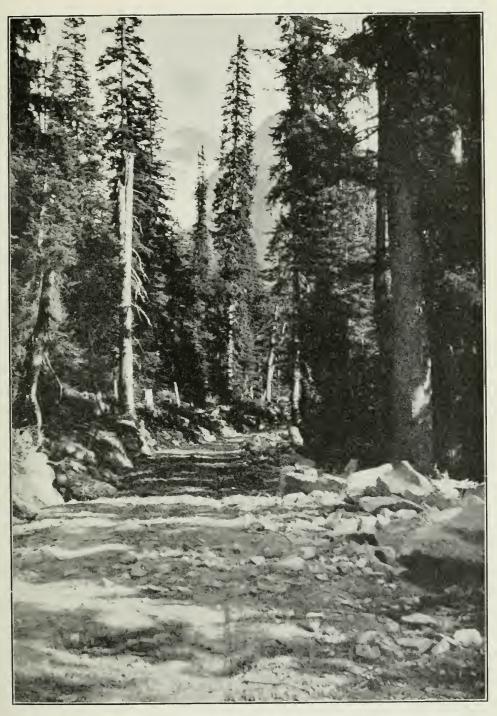
Emerald Lake and Mt. Burgess, Yoho Park.





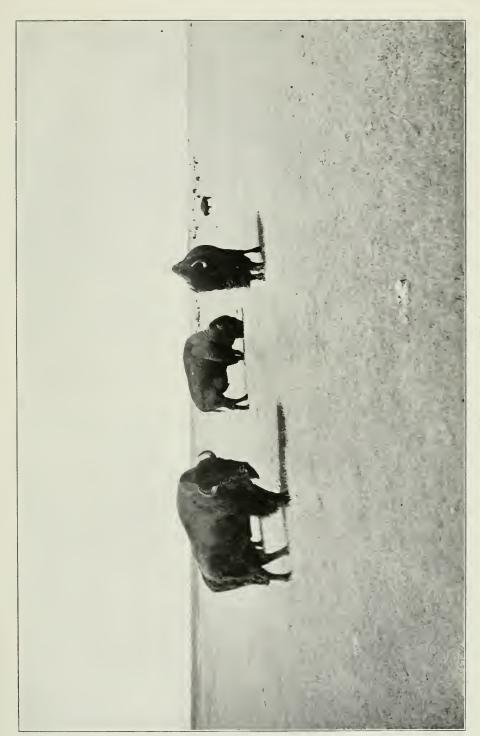
Valley of the Illecillewaet, Glacier Park.





On the way to the Nakimu Caves, Glacier Park.





"Monarchs of the Plains."





Mt. Robson in winter. Height 13,700 ft.



Minnewanka Dam, Lake Minnewanka, showing Thimble for Government Power Reservation on lower right.





Bear Cubs in Banff Zoo.



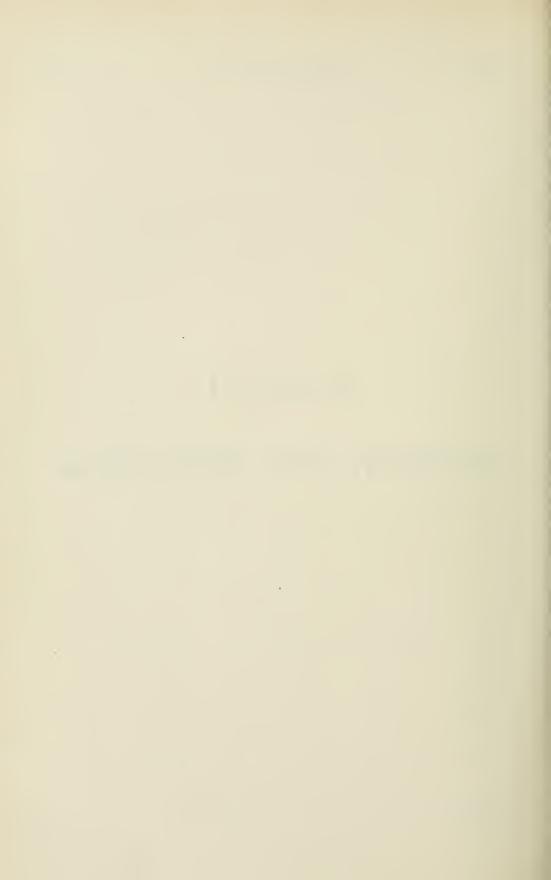


Lake O'Hara, Yoho Park.



PART VI

FORESTRY AND IRRIGATION



FORESTRY AND IRRIGATION

No. 1.

REPORT OF THE DIRECTOR OF FORESTRY.

DEPARTMENT OF THE INTERIOR,
FORESTRY BRANCH,
OTTAWA, April 1, 1912.

W. W. CORY, Esq., C.M.G.,
Deputy Minister of the Interior,
Ottawa, Ont.

SIR,—I have the honour to submit the report of the work of the Forestry and Irrigation Branch for the year 1911-12, and also the reports of the officials in charge of the different divisions. During the year the administration of the Dominion Parks was withdrawn from this branch and a separate branch established for that purpose, and, therefore, the parks will be separately reported upon.

STAFF.

Messrs. T. W. Dwight, D. R. Cameron, S. S. Sadler and E. G. McDougall, graduates of the School of Forestry of the University of Toronto; H. C. Kinghorn, a graduate of the School of Forestry of the University of New Brunswick; F. W. Beard, a graduate in forestry of the University of Minnesota, were appointed to the permanent staff for forestry work at the beginning of the year.

Mr. W. N. Millar, a graduate in forestry of Yale University, who has had a very successful administrative career in the Forest Service of the United States, has been appointed to organize the administration of the Rocky Mountains Forest

Reserve.

Mr. J. T. G. Whyte, who was fire guardian at Split Lake on the proposed route of the Hudson Bay Railway, was unfortunately drowned in July by the swamping of his canoe while in the discharge of his duties as fire-ranger. Mr. Whyte was a forest ranger of large experience, and was faithful and conscientious in the discharge of his duties according to the evidence of those who lived in that vicinity, including the missionary, Rev. Mr. Fox.

The staff of the Commissioner of Irrigation has been considerably enlarged. The staff at Calgary now consists of twenty-two engineers and seven clerks and

draughtsmen.

Mr. W. G. Bligh, Member of the Institute of Civil Engineers of Great Britain, has been placed in charge of the inspection of the irrigation works of the Canadian Pacific Railway Company, under the supervision of the Commissioner of Irrigation, and is already at work examining the plans and arranging for the actual field work which will be taken up as soon as the weather permits.

Unfortunately the staff at the head office at Ottawa has not been sufficiently enlarged to handle the increasing volume of business that is necessitated by the expansion of the work in the field, and has made it necessary to use members of the outside staff for work at Ottawa for such time as it was possible to do so. For

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efficient administration the force at the head office will need to be considerably strengthened. The proper direction of the work of the field force and the recording of the information obtained and of the business transacted are in the best public interest and should not be considered of minor importance.

FOREST ADMINISTRATION.

The Forestry Division of this branch covers a variety of work, all of which

requires development as rapidly as it can be overtaken.

Up to the present time one difficulty in the way of rapid development has been the lack in Canada of men who have had technical training in forestry. Little progress can be made without a fair proportion of men in the service who have had the advantage of the study of forestry methods from the scientific standpoint, and who, therefore, understand the lines upon which advancement must be made and the ultimate purposes which the administration must have in view. The difficulty is now being overcome by the forest schools established in the Dominion, which are graduating each year a number of men who should fill this gap in the administration. The Forestry Branch of this department has so far furnished the chief opening for employment of these graduates, and there are now on the staff five graduates from the Forest School of the University of Toronto, three graduates of the Forest School of the University of New Brunswick, and seven graduates of Foreign Schools, most of them, however, Canadians who were employed before the Forest Schools of Canada were established.

The exploration of the public domain in order to ascertain the extent and present condition of the forests and to hold permanently in national forests the non-agricultural lands is an important side of the work, and a first necessary step for the establishment of a permanent forest policy. Consequently six parties were detailed for this work during the past year in Keewatin, Northern Manitoba and Saskatchewan, and in Alberta and the Railway Belt in British Columbia, and these have added much to our knowledge of the forests, and defined extensive additional areas that should be held for forest purposes.

The protection of the vast extent of northern forest is a task of great magnitude. The belt of land, more or less forested, stretching from Hudson Bay to the Rocky Mountains covers a distance of 1,500 miles from east to west, and from 300 to 700 miles from north to south, and, with travel, railway construction and settlement steadily working into it from all directions, the danger of fire is great and constant. On the whole, the staff of rangers patrolling in these districts is of a good class, but the number so far employed, 129, is utterly inadequate to the task when the season

is at all dangerous.

One of the weaknesses of the fire-ranging work outside of the reserves has been the lack of proper inspection to determine what districts should be patrolled, and how the patrols of the rangers should be arranged, and to ensure that the patrol is being carried out faithfully. I have previously made representations in regard to this phase of the administration, and further experience has only confirmed my conclusions in regard to the necessity for inspection. I am satisfied that a competent system of inspection would result in a much more effective fire-ranging organization and in a more economical handling of the work. There is yet too much of haphazard in the manner in which the fire patrol is administered.

The lumbermen in the West have not heretofore taken as live an interest in the protection of the timber from fire as the investments that they have in timber limits would seem to justify. A more active participation by the lumbermen in the system of protection should lead to better results, and, without their co-operation, it is difficult for the department to accomplish all that should be done. A scheme for

co-operation by the lumbermen in this work should be heartily welcomed.

The organization of the permanent forest reserves so as to make them fire-proof and to provide proper management is work that requires a good permanent staff and a system of permanent improvements, such as forest-ranger stations, trails, roads, bridges, telephone lines, &c. In my report of last year I called attention to the necessity for choosing the forest-ranger staff on a basis of special qualifications for the work, and outlined the qualifications necessary. As the forest-ranger staff is the groundwork of all the organization for haudling the reserves, the choice of the right kind of men is a factor of the greatest moment. The improvement work above referred to, as required on the reserves, is necessary if there is to be an effective protection and management, and, as all this work is yet to be done, it will be seen that there must be a large initial expenditure which cannot be expected to be returned by the forest immediately. The work on permanent improvements is in fact a capital expenditure and should be considered as such. A proper system of roads, trails, buildings, &c., throughout the reserves will cost a large amount of money, the incidence of which should be distributed through a series of years. These works. once done, will require a comparatively small expenditure for maintenance in addition to such work as may be done by the permanent ranger staff. So long, however, as this work remains undone, the forests are exposed to danger which cannot be coped with in seasons of light rainfall, and which renders much of the expenditure that is being made for fire patrol finally nugatory, as the history of the dry years so eloquently testifies.

It must be expected, therefore, that the expenditure on the forests for a considerable period will exceed the revenues. A permanent policy, in the present condition of our forests, cannot be worked out on any other expectation. The waste of years of unchecked fires cannot be repaired in a day. When the fire danger has been eliminated and proper system of cutting timber introduced, the condition of the forests will steadily improve, and finally will reach the stage where a sustained annual yield can be obtained which will give revenue sufficient to cover the costs of administration and furnish as reasonable a profit as a government would be expected

to obtain.

The collection of statistics in regard to forest products is an important corollary to the other work of this branch. Previous to the starting of this work by this branch in 1908, there were no reliable records of the yield of the forests of Canada or of the value of the forest as a producer of wealth and a support of native industries. These reports, combined with the export and import returns of the Department of Customs, have revealed our strength and our weakness. They show an annual value of Canadian forest products of \$166,000,000, second only to the agricultural production; that, as far as pulpwood is concerned, Canada is the greatest producer and supplies not only Canadian requirements but a large part of those of the United States, but that as far as the more valuable woods are concerned, especially hardwoods, the supply is steadily approaching the point of exhaustion and in most hardwoods has already practically reached it. A strengthening of the staff handling this work would make the reports still more valuable and useful.

A further development that would properly round out the natural work of the Forestry Division of this branch would be the investigation of waste in the forest and in the manufacture of wood and experimentation in new processes to prevent waste. Unquestionably one of the developments in the direction of economy must be in the elimination of waste outside the forest as well as inside. The drain upon our wood supplies will become so great that they must not only be protected when standing in the forest, but must be followed all along the line of use and made to spread as far as possible both in quantity and time. The work of this branch cannot be considered as complete until it can follow the products of the forest through this whole cycle and assist in economizing them to the end. Provision for investigations on the lines indicated should be made without delay.

TREE PLANTING.

That the interest in the planting of trees on farms on the prairies of the West has been well sustained is shown by the number of applicants who received trees, namely, 3,285, as compared with 3,173 of the previous year. The number of applicants to whom trees will be sent in the spring of 1912 is 3,618, and the number of trees to be distributed 2,729,135, as compared with 2,636,100 in the previous year. One good feature of the class of applications which is now being received is that, as a rule, the land is being well prepared in accordance with the requirements of the department, before applications are submitted. The educational work in this respect is, therefore, beginning to have effect.

The office work necessary in connection with the handling of the correspondence, in the preparing of planting plans and distribution lists, is becoming larger as the work develops, and it would seem almost necessary that in a very short time better office accommodation than that which is now supplied should be provided at Indian Head. At present the offices are in the second story of the business block, and the records would not be very safe in case of fire. In other ways the space provided is not very satisfactory, and it might be well to consider the question of erecting a special office building for the accommodation of this work, which will undoubtedly

continue to develop for a good many years to come.

Although the present forest nursery station was enlarged recently by the addition of a quarter section, the land is somewhat broken and not very well suited for the growing of nursery stock, consequently it is not likely that an output greater than three million to three and a half million trees can be provided at that place. As the demand for trees continues to increase, it was decided that it was necessary to provide additional nursery accommodation. In deciding where additional nursery accommodation should be obtained the factors to be considered were: First, suitable climatic conditions; second, facilities for shipping, and third, a labour market. In order to grow trees in the nursery so that they will be satisfactory under any climatic conditions, it is best to grow them without having to apply water for irrigation, and, therefore, sufficient rainfall to water the nurseries naturally would be required. A district which was free from hail storms was also desirable, as such storms would do a great deal of damage to a forest nursery. As millions of trees are shipped out at one time in the spring and have to be delivered within a short period, if they are to be planted successfully, shipping facilities are of the greatest consequence. A good supply of labour is also a necessity, as the nature of the forest nursery work requires that at special periods when stock is being prepared and heeled in in the fall and when it is being shipped in the spring, an additional supply of labour should be easily available. On considering the whole question it was finally decided that these conditions would probably be best met in the vicinity of Saskatoon, and arrangements were finally made for the purchase of lands at that place. The lands selected were the north-east quarter of section 1, and the south-east quarter of section 12, township 37, range 5 west of the 3rd meridian. This land is a light loamy soil, is level and practically all of it can be used for the growing of trees except a few acres in one corner which are somewhat stony. This portion can be used for pasture purposes and for the location of buildings. It is expected that this nursery will be in order inside of two years so that stock can be obtained from it to provide for the increasing demand.

As soon as a stock of coniferous trees could be worked up, it was decided to arrange for their distribution, but as it would not be possible at any time to provide a very large stock, it was thought better to make a charge for them instead of distributing them free as has been done with species of decidnous trees. In spite of this charge the demand for coniferous trees has been great, and all that were provided have been applied for.

FIRE-RANGING.

The season of 1911 was generally wet throughout the western provinces so that, fortunately, after the first few weeks in the spring, little difficulty was experienced. In British Columbia only was the danger of fire continuous throughout the summer.

In the dry weather of the spring there were several serious fires. One occurred at Mafeking on the line of the Canadian Northern Railway, in the Province of Manitoba, and caused damage to timber limits amounting to probably fifty million feet. There is considerable evidence to show that the fire started from the railway, although the evidence is not conclusive, and it is also stated that the fire was started from the lumbering operations.

There were several serious fires also in the vicinity of Prince Albert and several of the lumbering firms lost heavily. The merchantable timber killed by the fires in that district is estimated at one hundred and ten million feet board measure, of which seventy-two million feet have been taken out and manufactured during the past year. At the best, however, this still leaves a heavy loss to the lumbermen, and has made necessary the throwing of a large quantity of timber on the market at a time when good business management would not have determined on such a course.

Three of the most destructive fires came from settlements, and one may have been due to the railway. In spite of all the warnings that are given in regard to the danger of fire there is a great deal of carelessness in the handling of it and apparently a long process of education is yet necessary before there will be such an appreciation of the danger as to give any assurance of security.

The number of fires which occurred and their causes are as follows:-

Railways—under construction	
	17
Hunters and travellers 1	.15
Clearing land	55
Lightning	26
Indians	
	7
Cause unknown 1	02
Total	38

The number of fire-rangers employed was 129, distributed as follows: British Columbia, 46; Edmonton, 28, including 9 along line of construction of Grand Trunk Pacific and Canadian Northern; Athabaska and Peace Rivers, 18; Battleford, 4; Prince Albert, 24; Eastern Manitoba, 4; Keewatin, 5.

In the Keewatin district north of Lake Winnipeg a chief ranger was located at Norway House and one at Split Lake, these being specially required on account of the increase of travel by the canoe routes through this district consequent on the survey and proposed construction of the Hudson Bay Railway. The population of the district are mostly Indians and freighters and canoemen for the Hudson's Bay Company and others. Along the canoe routes the timber has been burned, leaving only islands of good timber among vast stretches of burned or immature forest. Special efforts have been made to interest the Indians in the prevention of fires and a special fire ranger's badge was made for them. The efforts of the rangers are having a good effect, as will be seen by the following extract from the report of the chief ranger, J. T. Blackford, dated at Norway House, the 10th September, 1911:—

'With few exceptions the Indians have all been very careful this summer. Not a single report of fire has been received by me. On my way to Split Lake I was eyewitness to one of which I will relate later on in this letter.

Cross Lake Indians

THE AGGAX GACLAR 6CDA4*

DPLAA) PP 6CA)CL'* 6C69'PARCH

Adu GCPQ GHA GACTAGC 6C69'
6C69'A-CVALX GATURE C"C" 6dCV4P

VLGA6CL GATAGUA VOT 6C69'ATA6*

A.A AT PP APLAA? VOL VCZV.

We Indians appreciale the work the government is doing to prevent forest fires in our district We pleaser ourselves to do all we can to help. We promise to put out our own camp fires every time before leaving camp we accept the tadges given by the Government as a pleaser Band hames Band

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'We had no trouble getting the Indians to sign the enclosed pledges. Before I would let them sign I made sure they thoroughly understood the nature of their pledge. One and all were very much pleased with the badges given them. They pinned them in all sorts of places on their clothing, where each one's fancy thought the most conspicuous place. One man would not take his badge until he had first washed himself and changed his shirt, and then the badge was used as a collar button or brooch. Hats and shirts were the favourite spots for adornment but not a few—after carefully polishing them—would fold them in cloth to keep them for some special occasion.

'A great percentage of them feel they are thus, having received the badge from

the government, constituted minor chiefs and guardians of the forest.

'Some, not many, refused to sign the pledge and it is these whom we have to watch.

'It is generally expressed around Norway House that this is the first summer for many years that there has been no forest fire visible from here. This may not altogether be due to our presence and work here, but I think in a large measure it is.

'It may not be out of place here to write concerning my trip to Split Lake. This was in the forepart of August. On my way down I travelled for two days with about twenty Cross Lake Indians. These men talked freely of the "Big Fires" in the past, always seeking to impress upon me that not they, but some other band,

were responsible for these.

'The timber around Pipestone lake is some of the best I have seen in the north here. How far it extends I cannot say. At Sipiwesk lake (by the way, there must be nearly 2,000 islands in the lake) I saw where one of the islands had just been burnt over. Some Nelson House men had camped there the day previous, and although they had undoubtedly drowned the main body of their camp fire (we could still see the wet coals) some fire must have still been allowed to remain in the moss from which the bush fire started.

'On Sunday, August 6th, I camped with about fifty-five Split lake Indiaus (Indians as a rule do not travel on Sundays). I took the opportunity on this occasion to speak to them with reference to the prevention of forest fires. They all seemed interested and the chief spoke to his men, telling them to heed what I had told them. I had few badges with me on this trip, so did not give any to other than the chief. He seemed to appreciate the honour. I also took photographs of these men pledging themselves by the raising of hands to put out their own camp fires, and one of the chief.

'On our return we met eight York boats taking the last of the summer's freight to outposts.

'At Devil's river on the Nelson we put out what would, in a short time, have been a big fire. Some careless Indians had built a fire inland some distance the previous day, and as it was raining some neglected to put water on it on leaving. It had rained some during the night, but when we arrived there at about 2 p.m. the next day the moss and underbrush were just commencing to blaze up for a hundred yards or so. I took a photo of this as best I could, showing a fine specimen of spruce tree whose roots had been burnt to a depth of eighteen inches.'

Attached hereto is also a report of an exploratory trip made by Mr. Blackford during the winter.

In the Battleford district the chief ranger, Mr. George Douglas, worked out an arrangement with the provincial authorities whereby local rangers were authorized by them to take charge in districts that were not timber districts in order to act as an auxiliary force to the regular rangers. These men were to take charge of the fighting of fires that occurred in their districts, being paid only for the time they were so engaged. This arrangement was of considerable assistance in preventing fires.

In the Edmonton district it was arranged to place a steamer on the Athabaska river to assist in the fire patrol. From Grand Rapids to the mouth of the McLeod river is a stretch of water navigation where the current is so strong as to make navigation by canoe difficult and at times impossible and where the country is accessible only by the river. Strong representations were made to the department that there should be some better method of patrolling this district than that previously followed, and it was decided to place a patrol boat on the river. The boat is 42 feet in length and has a draught of 10 inches. The engines are powerful enough to force the boat upstream against the strongest current and it has been pronounced well equipped for the work required. The boat rendered good service through the season after she was launched.

Another boat was ordered for similar work on the Mackenzie river, but owing to the late date at which the order was given, necessitating late delivery, and the necessity for giving all attention to getting the reindeer shipment down the river. this boat was not forwarded but is available for service in the coming season. Several boats of this kind on the Lesser Slave lake, Peace river and Mackenzie river waters would be of much advantage in fire-fighting in those isolated districts where the rivers are the highways.

In the Coast district of British Columbia the most serious fire which occurred was at Coquitlam lake on land which was being cleared by the Vancouver Power Company. This fire burned for six weeks in spite of the efforts of the fire-rangers, and resulted in damage to fourteen million feet of timber, of which five million feet was a total loss. The patrol would be assisted very much by the erection of huts at points where the rangers should be constantly on the watch and by the opening up of new trails to give quicker access to paths of the patrols which can now be reached only by roundabout routes. As there are water stretches of considerable length in this district the work of the rangers would be greatly assisted by more boats on some of these water routes.

In the mountain districts of British Columbia there were a large number of fires and it is noticeable that in many cases lightning is given as the cause. The loss caused by these fires was 1,555,000 feet of timber. The most serious fire was on the railway line from Revelstoke to Arrowhead. Lumbering has been carried on all along this line and there is a great deal of débris which makes this a specially dangerous district, and there has been trouble with fire there almost every year. As the railway company proposes to adopt oil for fuel in its locomotives on this line during the coming year the danger should be greatly reduced.

PATROLS ALONG RAILWAY LINES.

A patrol of rangers under charge of J. A. Dunn was maintained along the line of the Grand Trunk Pacific Railway west of Edmonton, and on the Canadian Northern Railway after construction to the Yellowhead Pass began. On the Alberta Central Railway and on the Canadian Northern Railway in the railway belt in British Columbia patrols were also maintained. As a result no fires escaped from the right of way and it was cleared of débris in all cases so as to leave little danger of fire.

A number of railways into the northern forest districts are projected. The Hudson Bay Railway will pass for most of its course through a continuous tract of immature forest. Other railways in Saskatchewan and Alberta have been chartered to construct lines into the north country and for some years to come there will be great danger from this source. Arrangements are being made to guard all these lines of construction.

Patrols have been maintained along the railway lines in operation which undoubtedly form a chief point of danger. Several of the worst fires of last season

occurred along railway lines and in some cases the railway was probably responsible for the fires starting. The railway companies have shown willingness to co-operate in measures for the prevention of fires and have taken steps to clear their rights of way of inflammable material. The Canadian Pacific Railway has been doing this work through the mountain sections.

This railway is also changing its locomotive fuel through the mountains from coal to oil which will greatly reduce the danger on the steep grades in that section.

As the cost of the first patrol along the lines of railway is a heavy charge on the department, I recommended that the Forest Reserves Act should be amended so as to provide for charging one-half of the cost against the companies. As, however, an amendment to the Railway Act which has since become law had been proposed, by which the railways were to be required to furnish a fire patrol under regulations of the Board of Railway Commissioners, the recommendation was not proceeded with. Since the amendment to the Act has become effective, recommendations have been submitted to the Board of Railway Commissioners as to the patrol which should be required of the railways passing through forests on Dominion Lands.

TIMBER SURVEYS.

The inspection of the timber along the proposed route of the Hudson Bay Railway was continued from Split lake eastward to Hudson Bay along the Nelson river, and the report of Mr. F. W. Beard thereon is appended hereto. No large timber was found on the route except in a few places along the river where small clumps of mature spruce, aggregating only a few square miles, were found. In the remainder of the district traversed the timber is mainly small-sized black spruce, with some tamarack growing in the muskegs. The cold, wet soil of the muskeg makes the growth of the trees very slow, and as one goes towards Hudson Bay, the forest degenerates into an alpine type in which the trees are small and stunted and grow so slowly that the forest cannot be reproduced in one thousand years.

A timber survey under charge of W. J. Vandusen was carried out in the Porcupine Hills district in Manitoba in order to determine what additions, if any, should be made to the Forest Reserve. The district to the south, east and north of the reserve was examined and a large area not now included therein was found to be rough and hilly, with a clay soil mixed with boulders, subsiding as it approaches the Canadian Northern Railway on the east into a fairly level plateau, the soil on which consists mainly of sand with intervening muskegs. The timber is mainly spruce and jackpine, and several large tracts are held under timber license. Being of poor agricultural value a recommendation was made for the inclusion in this reserve of an additional area of 272,640 acres.

Mr. D. R. Cameron made an examination of the timber areas in the vicinity of Lesser Slave lake and the report submitted is being published as a Bulletin, No. 29, of this branch. The Lesser Slave lake district is on the line of travel to the Peace River district, and with the interest which has developed in the opening of that new district will be on the line of travel by river and trail for the increasing numbers that are entering the country. Railway construction will also be begun, and it was therefore, considered important that an examination should be made of the timber of this district and plans outlined for its protection.

Generally speaking, the rivers were taken as bases for the survey, but in parts of the territory it was found necessary to send out sub-parties across the muskegs,

the members 'packing' their supplies on their backs.

From Sawridge (at the east end of Lesser Slave lake) the party worked along the north shore of the lake to The Narrows, then returned to Sawridge and worked along the south shore of the lake in the Swan Hills country. The exploration of this country could not be finished, but will be completed during the coming summer.

Lesser Slave lake is very shallow and the north shore is very stony. It is drained by the Lesser Slave river, which flows through a valley eight to ten miles wide, consisting of flat, burned muskeg country, with interspersed gravel and boulder-clay ridges, and joins the Athabaska river at Mirror Landing.

Northeast of the lake lies a plateau known as Martin Mountain, and to the south is another plateau known as the Swan Hills. West of The Narrows the distance between the lake and the plateau increases and large areas of agricultural land are

found.

Generally speaking, the soil of the agricultural areas consists of loam (clay or sandy) underlain by boulder-clay. Agricultural areas are found north of the Athabaska and east of Mirror Landing (about 75 square miles), from Muskeg Creek to Mirror Landing along the Lesser Slave river (about 15 square miles), in township 73, ranges 2 and 3 (25 square miles), adjacent to Sawridge (9 square miles), south of Martin Mountain between Muskeg and Martin creeks (45 square miles), in township 72, range 6 (10 square miles) and along Swan river (25 square miles). West of the Swan river and north of the Swan Hills is a larger area, most of which will be good farming land. There are, perhaps, 360 square miles of this land.

The great areas of non-agricultural land fall into two divisions, viz., (1) undrained, and (2) broken. Areas of the former class consist of muskeg; the latter

are included in the broken plateau country.

Of the 6,700 square miles examined, about 2,000 square miles consist of muskeg. On some 923,000 acres aspen poplar predominates, forming eighty per cent of the total stand. The average yield of pulpwood in forest of this description is about twenty cords per acre. This poplar country is capable of being reforested with spruce.

Along the Swan river some cottonwood is also found. There is also a small quantity of birch along the Assineau river. Stands of young jackpine occur on

sandy soils, especially along the Athabaska and Lesser Slave rivers.

On the valley slopes of the Swan Hills much lodgepole pine is found. The total area of this type amounts to about 1.900 square miles. On over ninety per cent of this area the present growth has not attained tie size, being useful, however, as a protective covering and for a possible future supply of pulpwood. Some 1,500.000 ties may be obtained from this area. The present yield of pulpwood would be about 5,780.000 cords; this quantity will in all likelihood be doubled if the timber is allowed to grow for twenty years.

In the Martin Mountain district an additional supply of pulpwood (mainly

balsam fir) can be obtained.

Of the total area of land examined, fourteen per cent has been burned over within the last twenty-five years. The poplar tracts have not been visited severely, but the muskeg has suffered very much. Within the period specified (that is, the last twenty-five years) over 300 square miles have been burned along the Lesser Slave river, 230 square miles east of Martin Mountain, 90 square miles north of The Narrows, 140 square miles in the Swan Hills, 45 square miles near the head-waters of the Otauwau, besides other smaller fires. The most serious of these is that in the Swan Hills, where probably 350,000,000 (three hundred and fifty millon) feet of timber was destroyed in the two fires that, at an interval of thirteen years, ran over the area—a quantity of timber sufficient to have supplied the needs of a large community for years.

There has been very little reproduction on these areas.

For convenience the country may be divided into ten districts, as below, and the timber summed up as follows:—

District.	Ties.	Pulpwood. Cords.	Timber. Ft. B. M.
Meose Lake. Lesser Slave River Valley. Martin Mountain The Narrows. Otauwau. North Slopes. Swan Hills. Upper Saulteux	5,000 227,000 2,000 1,500,000	4,320,000 14,288,000 734,000 108,000 2,592,000 5,780,000 4,680,000	4,820,000 2,500,000 12,700,000 1,720,000 53,000,000 207,722,000 10,000,000 56,150,000
Vermilion Creek. Coutts River. Total	2,250,000	522,000 33,024,000	348,612,000

Mr. Cameron recommends that the Swan Hills country and the Martin Mountain region be set aside as forest reserves. They are, he points out, unsuitable for farming purposes, and in addition to the providing of a future timber supply the forests must be preserved in order to regulate the water-supply of the rivers and to prevent their eroding their banks. Of late years the continual denudation of the country at the head-waters of the Lesser Slave river tributaries by fire has given rise to alternating conditions of very low and very high water, which have proved very harmful to navigation. Indeed, things have come already to such a pass that every bad storm means a miniature freshet, and a week's rain a swollen torrent, bringing down trees and driftwood of all kinds which are a menace to navigation. Moreover, erosion is rapidly filling with silt the channels of the rivers and forming sand and gravel-bars. In a district whose development depends largely on water communication, the advisability of remedying this state of affairs by the preservation of the forests is obvious.

Much better protection of the forests against fire is essential, and Mr. Cameron has submitted a scheme of patrol districts and lookout stations which should, if carried out, go far to meet this need.

Mr. E. G. McDougall had charge of the inspection of the Porcupine Hills in the province of Alberta. This range of hills, of an elevation 4,000 feet to 5,800 feet above sea-level, lies in proximity to the Rocky mountains and is surrounded by a well developed agricultural and grazing country. The hillsides are partly timbered with a scattering growth of Douglas fir, spruce and pine, which occasionally forms merchantable stands. The timbered area has been much reduced in recent years by logging operations and fires, but these hills have long been the chief source of timber supply to the adjacent country and small towns. A number of important streams already much used for irrigation have their sources in these hills. For these reasons it was considered advisable to recommend the reservation for forest purposes of an area of 194 square miles.

Later in the season Mr. McDougall made an examination of the sandy tract of land on the north side of the North Saskatchewan river opposite to Prince Albert in the vicinity of the Pines and Nisbet Forest Reserves. The land examined consists of sand-hills and muskegs and is not suitable for agriculture. The trees, while not of large dimension, are of quick growth and provide valuable material for fuel, fencing and ties. One hundred and thirty-six square miles north of the river were recommended as an addition to the Nisbet Forest Reserve, and thirteen square miles south of the river were recommended to be added to the Pine Forest Reserve. An inspection was also made of a tract in the vicinity of Fort à la Corne, east of Prince Albert on the Saskatchewan river, which was reported to be non-agricultural. This district differed from that in the vicinity of Prince Albert, chiefly in the larger proportion of muskeg. As the season was late and there was considerable snow on

the ground, a thorough examination could not be made and the district will have to be further inspected. The non-agricultural area will, however, include some 512 square miles.

Mr. G. H. Edgecombe had charge of two parties which continued the examination of the boundary of the Rocky Mountain Forest Reserve northward from the North Saskatchewan river, that being the point to which the survey of the boundary was carried in the previous year. The mountain range broadens and the foothills extend farther out into the prairie as they go northward and there is a broad expanse of muskeg and broken country that makes the eastern boundary of the reserve difficult to determine. It was found that, to include the absolute forest land, it would be necessary to fix the boundary along a considerable part of its course to the east of the line previously determined on and this will involve an addition of 2,483 square miles to the reserve.

The timber here, as elsewhere, has suffered seriously from fire, and the windfalls and muskeg make the work of exploration difficult and arduous. Mature timber occurs only in small areas and consists of spruce, lodgepole pine and a few patches of Douglas fir. The rivers are large and important tributaries of the Saskatchewan and Athabaska rivers and the watershed is a not less important one than that in the southern part of the reserve. Coal seams of great value occur in this part of the reserve and mines are now being rapidly developed. The demand for timber for the operation of the mines will be so large that it is doubtful if, in their present depleted condition, the forests can supply what will be required.

In the Coast district of British Columbia, Mr. H. Claughton-Wallin made a special examination of the Anderson river district in addition to smaller inspections. The stand of timber on this river was rather a disappointment, as it was found to have been largely damaged by fire; so that, with the expensive construction that would be necessary to take the timber out by railway,—the only possible means,—the cost would make present operations unprofitable.

Under Mr. J. W. Curry an examination of the timber on the English river was made and his report is attached hereto. The stand was found to be disappointing. This territory will hereafter be included in the province of Ontario.

FOREST RESERVES.

The Dominion Forest Reserves and Parks Act, assented to on May 19, 1911, besides making some changes in the wording of the Act, made an addition to the forest reserve area of 13,403,600 acres, the principal part of which is the Rocky Mountain Forest Reserve. The total area included in the reserves is now 16,128,920 acres and the list of reserves is as follows:—

British Columbia:—

Area.
121,600 acres.
67,840 "
11,360 "
80,000 "
95,360 "
131,200 "
16,000 "
463,040 "
367,360 "

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	Area	
Riding Mountain	982,400	acres.
Turtle Mountain	69,920	66
Spruce Woods	143,680	66
Duck Mountain No. 1	898,560	44
Porcupine No. 1	199,680	и
Saskatchewan:—		
Beaver Hills	63,360	"
Pines	98,560	44
Moose Mountain	99,840	66
Porcupine No. 2	230,400	41
Duck Mountain No. 2	51,840	
Cypress Hills No. 2	46,080	66
Nisbet	9,560	46
Alberta:—		
Cooking Lake	71,360	66
Cypress Hills No. 1	51,840	
Rocky Mountains	11,656,320	.4
Buffalo Park	101,760	46

The organization of the reserves has not been altogether satisfactory, partly due to the fact that the appropriations available were not sufficient to provide a proper organization or the facilities necessary to have the rangers live in their districts in the reserves or to provide for quick communications, and partly on account of the failure of some of the rangers to properly administer their districts. A more adequate appropriation has been provided for the coming year and with some reorganization which has already been partially carried into effect it is expected that during the coming year considerable progress will be made in overcoming these defects.

The form of organization adopted is to have each reserve divided into permanent ranger-districts with a permanent ranger in charge who will be required to live in his district in a house to be provided by the department. He will be required to patrol his district, to protect it from fire and trespass, to open up trails and roads through it, and to keep in order any telephone lines that may connect his district with others. He will also look after any lumbering operations carried on in his district so as to see that the regulations of the reserves are being properly observed and to check up the cut. He will report to and receive instructions from the supervisor, who will be in charge of the whole reserve.

The supervisor will be responsible for the laying out of the work on the reserve, for the work of the forest rangers, for payment for work done, and in most matters will report directly to the head office at Ottawa and receive instructions therefrom. While the supervisor is the better for technical training it is not absolutely required, if he has good executive ability. On the larger reserves there is also a forest assistant, who is a technically trained man, a graduate of a forest school, and who acts as technical adviser to the supervisor and under his instructions.

A system of inspection of the forest reserves is provided. The inspector must be a technically trained man with executive ability and experience. His work is to advise with the supervisors and rangers as to the best methods of handling their work and as to new work to be undertaken, to see that the regulations are being observed by these officers and to check their work and expenditures generally. While

the organization is in process of development the work of inspection is of special necessity, and heretofore the provision for it has not been adequate.

The staff on the reserves is as follows:-Supervisors, 5; permanent rangers, 35;

temporary rangers, 11.

In order to carry out the work of the reserves effectively it will be necessary to make better provision for handling the office end of the work. Records of correspondence, instructions, expenditures and revenues should be in much better order, and

for this purpose office accommodation and equipment are required.

The only fire causing serious loss was one on the south side of the Riding Mountain Forest Reserve which came in from settlement in the vicinity. This fire killed a quantity of spruce, estimated at 1.870,000 feet board measure. In consequence of this fire it was necessary to dispose of the timber immediately to prevent its becoming a total loss. The tract was divided up into ten berths and put up for sale by competition and prices of \$2 to \$2.10 per thousand on the stump were received. The timber was sold on the condition that no green trees should be cut except those that were marked by a forester for removal, that stumps should be cut not higher than eighteen inches, and that the débris of operations should be piled or otherwise disposed of under the instructions of the forest officers.

It was also considered desirable to permit a few mills to locate in the Riding Mountain Forest Reserve as the timber near the boundaries of the reserve was largely cut out and it would convenience the settlers to be able to have their logs sawn in the bush so that they would need to haul out only the lumber. The right to locate three mills in the reserve was put up to competition on the 23rd day of December on the basis of the rate to be charged for logging and sawing for the settlers. The tenders received were from \$9 to \$10 per thousand feet. Although the season was then late for commencing operations the millmen took hold of the work and on the whole have carried out the regulations well.

The trees were utilized fully and the bush piled on the operations of the millmen, both in the dead timber and the green, and the work of the past season was a distinct advance on that of the previous year. The millmen begin to understand better what is wanted and to see the purpose of the methods followed. Similar operations were

conducted on the Rocky Mountain Reserve.

The settlers cutting their own logs under permit were also required to utilize the trees more fully and dispose of the brush, but their operations, being individual and scattered, were more difficult to watch. There was a distinct advance here also in the

improvement of methods.

Some criticism was heard from both the settlers and the small millmen that these regulations were not enforced on license berths within the reserves. The provisions of the licenses provide fully for such regulations being enforced but a question has been raised as to the jurisdiction of this Branch in the matter which has prevented consideration of the action that should be taken.

On the Turtle Mountain Forest Reserve in Southern Manitoba a portion of the reserve was fenced, as it was thought that, if it were grazed over, the keeping down of the grass would assist in preventing fires. Regulations were adopted for handling such

grazing, the provisions being as follows:-

Grazing Permits in Turtle Mountain Forest Reserve.

1. Permits for the grazing of cattle or horses within such portions of township 1, range 21, and township 1, range 22, west of the principal meridian, as lie within the boundaries of the Turtle Mountain Forest Reserve may be granted subject to the regulations hereinafter provided.

2. The number of stock which may be grazed upon the said tract and the period during which grazing will be permitted shall be determined for each year by the

Director of Forestry.

- 3. Subject to the approval of the Director of Forestry, the forest ranger or other officer in charge of the reserve shall fix a date before which all applications for grazing permits shall be submitted, and any applications received after the date fixed shall be entitled to consideration only after the applications received prior to such date have been satisfied or disposed of. Due notice of the date fixed shall be given at least thirty days before such date of advertisement in a newspaper circulating in the district.
- 4. Applications for grazing permits must be made on the form prescribed for that purpose and must give a sufficient description for identification of the stock, including the marks and brands, when there are such.
- 5. Bona fide residents in the vicinity of the reserve will be given preference in the granting of permits.
- 6. The dues for a grazing permit shall be twenty-five cents per head of stock per month, or one dollar per head of stock for the season, payable in advance. Only stock six months old, or over, will be counted in the determination of the dues for a permit.
- 7. Permits will be granted only for the exclusive use and benefit of the owners of stock, and will be forfeited if sold or transferred in any manner or for any consideration.
- S. When a permittee is ready to drive stock into the grazing tract on the reserve, he must notify the forest ranger or other officer in charge of the reserve, by mail or otherwise, stating the number of stock to be driven in. Similar notice must also be given when the stock are to be removed. Any stock removed before the expiration of the permit may be replaced by other stock, to an equal number, which are owned by the permittee.
- 9. At the expiration of the permit, the permittee shall remove his stock from the reserve, and if this is not done within seven days after the expiration of the permit the officer in charge of the reserve may have the stock removed and the department will assume no responsibility for the loss of the stock or for damage occasioned by them.
- 10. Whenever the forest reserve officer requires it, all stock grazed under permit must be salted regularly at such places and in such manner as he may designate.
- 11. The carcases of any animals which die within the reserve must be removed by the owner immediately and buried or burned.
- 12. All permittees are required to aid in extinguishing fires in the tract within which permits are granted.
- 13. The department will not be responsible for damage which may be caused by stock escaping from the enclosure.
- 14. If upon examination it is evident that grazing is damaging the forest and interfering with the production of wood, the Minister of the Interior may order that grazing shall cease.

The experience of the past year is not sufficient to give information as to the success of the experiment.

Heretofore the regulations for forest reserves have provided only for the granting of permits for timber for the use of settlers, the settler being a person living on a farm. It would seem, however, that, as the reserves are the property of the public, persons living in towns and villages (many of whom are less able to obtain timber otherwise than are the farmers) are as much entitled to consideration as the latter, and there does not seem to be sufficient reason why this restriction on the use of the reserve should be continued. Timber permits might also be allowed for schools, churches and municipal works.

The reserves might also furnish the supply for small manufacturing establishments. In the vicinity of each of the reserves there might very well be, in the future, many industries carried on which would assist local trade and furnish a considerable source of wealth.

There are tracts within the reserves which have a good growth of grass and upon which grazing could be carried on without damage to the forest. This is particularly true of the Rocky Mountain Forest Reserve. Regulations similar to those established for the Turtle Mountain Forest Reserve would enable the handling of this question on a satisfactory basis.

LICENSED TIMBER BERTHS.

In order to protect the rights granted to licensees of timber berths granted under the Dominion Lands Act prior to enacting of the Forest Reserves Act and the setting apart of the reserves, Section 11 of the Forest Reserves Act enacts that 'nothing in this Act shall affect or prejudice any right or interest which has heretofore been acquired, under any lease or license, for cutting timber or for any other purpose in

respect of any lands within a reserve.'

This saving clause has now been legally interpreted to have the effect of withholding from the forest reserve and the operations of the Forest Reserves Act the timber covered by license with the result that this timber which forms the main body of mature timber in the forest reserves and which should be operated with a view to conserving a future supply will be out of the control of the forest reserve administration, and only the bare and unproductive portions are to be administered for the purposes for which the reserves were set apart, and only the settlers and small operators will be subject to proper regulation and protection. The Act could easily be amended to remove such an anomaly without affecting injuriously the rights of the licensees, and unless it is removed the purposes for which the forest reserves have been set apart will be largely nullified.

SPECIAL INVESTIGATIONS.

As, in providing for the reproduction of the forests, natural processes will have to be the great dependence, it was considered necessary that a special investigation should be begun of the reproduction following fires and cutting so that the methods to be adopted in regulating cutting might be carried out on lines which would give the desired results. The importance of this investigation may be illustrated by pointing out that in the Rocky Mountains a difference in seed-trees left, or in the condition of the seed-bed, may mean the difference between a reproduction of spruce or of balsam fir, and under almost all conditions spruce is the more valuable species.

Mr. T. W. Dwight, a graduate of the Forest School of the University of Toronto, was given charge of this investigation, and the report thereon is published as a bulletin

(No. 31 of this Branch).

Mr. H. Claughton-Wallin also made a special investigation of the rate of growth of Douglas fir in the coast district. It was found that at the age of fifty years the average diameter at breast-height (4½ ft. from the ground) was 18.9 inches and the average height 101 feet; at one hundred years the diameter at breast height was 32.4 inches and the height 166 feet. Yield tables have been compiled from these measurements, and are found to agree substantially with those compiled by the United States Forest Service for Douglas fir in the United States.

WATER ADMINISTRATION.

The administration of the water-supply of the country is closely associated with that of the forest. The forest reserves are the source of the rivers and streams, and in them are located great natural reservoirs and sites for artificial ones which may regulate and control the flow of the streams. The forests and the water-supply have, therefore, a close connection and are very suitably administered as one system.

The waters in the provinces of Alberta and Saskatchewan are administered by the federal government under the Irrigation Act. It may be pointed out that although the Act is designated the Irrigation Act, it covers all uses of water and might be designated, as the similar Act is in British Columbia, the 'Water-Users' Act.' The stream measurements, surveys of storage reservoirs, and matters that affect the control of water supply generally, as well as the inspection of works for the use of water for domestic, municipal, industrial and engineering purposes, the construction of drainage works and the granting of licenses for such purposes are dealt with thereunder. The only matter of water-supply not now finally dealt with by the office of the Commissioner of Irrigation is water-power, which has only recently been withdrawn from the operations of the Irrigation Act, and it is somewhat difficult to understand how such withdrawal has made for efficiency in administration. The work of the office of the Commissioner of Irrigation at Calgary is, therefore, the basis for all administration of the uses of water within the territory where the Act has scope. To keep up with the development of the West and the inspection of the increasing number of water applications requires an addition both to the inside and outside staff of the office of the Commissioner of Irrigation if the whole of the work is to be kept up with efficiency.

INSPECTION OF THE CANADIAN PACIFIC RAILWAY COMPANY'S IRRIGATION PROJECT.

Authority was given to the Canadian Pacific Railway Company, in 1904, to construct a system of canals, &c., for the irrigation of a tract of some 3,000,000 acres of land lying along the main line of the company's railway east of Calgary, Alberta. A period of fifteen years was allowed for the completion of the system of works.

The water for this project is taken from Bow river at two points, viz.: on section 13, township 24, range 1, west of the 5th meridian, near the city of Calgary, and at Horseshoe Bend, in township 21, range 18, west of the 4th meridian. For convenience of operation the company has divided its irrigation block by north and south lines into three nearly equal portions. The western section and the small proportion of the central section which is to be irrigated are supplied with water from the canal system tapping the river near Calgary, while the eastern section will be supplied from Horseshoe Bend.

The western section, lying nearest to Calgary, was the first to be constructed and the partially completed works have been used to some extent for two or three years. The company applied in August. 1911, for an inspection of the works constructed in the western section and for the issue of a license authorizing the diversion and use of sufficient water for the irrigable land in this section, estimated at about 370.000 acres. The season was too far advanced to permit of the necessary inspection being made last season, but arrangements have been made to have a thorough inspection made during the season of 1912.

The work of inspection will probably occupy the entire season, as there are about 17 miles of main canal, 254 miles of secondary canals and some 1,300, or more, miles of distributing ditches, all of which will have to be carefully examined so as to determine whether the system is capable of supplying water to all of the irrigable land, and in sufficient volume to permit of beneficial use being made of the water during the limited period when required. Upon the completion of the inspection, if the works have been found to be in satisfactory condition, a license will be issued to the company authorizing it to divert and use, or lease to others, a quantity of water sufficient to irrigate the irrigable land in this section, or as much of it as the works are capable of irrigating. On the other hand, if the inspection shows that the works are not adequate for the purpose intended, the company will be required to make such changes as may be found necessary and the issue of the water license will be withheld until such changes have been made.

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ST. MARY AND MILK RIVERS.

Under the provisions of the International Waterways Treaty the waters of the St. Mary and Milk rivers, and all their tributaries in Canada and in the United States, are to be treated as one stream system and the waters are to be divided equally between the two countries, under the supervision of an International Joint Commission.

Hydrogaphic surveys, or stream measurements, have been carried on systematically by this department for several years and especial attention has been given to obtaining records of the flow of the streams affected by this treaty, but these measurements must be continued for several more years before any reasonably accurate estimate can be made of the volume of water carried by the several streams throughout the year, or at any particular period. Steps are now being taken to secure the cooperation of the United States Geological Survey, or the Reclamation Service, in the establishment of gauging stations on the St. Mary and Milk rivers at, or near, the international boundary. It is proposed that automatic gauges shall be established on both streams and that observations shall be taken by the officers of both countries, so that the records so obtained shall not only be as accurate as possible but that they shall be accepted as such by both countries. Under present conditions separate gauging stations are maintained by each country and conditions may arise where the accuracy of the records may be challenged.

There has been a considerable development of irrigated farming, particularly the growing of hay, in the valleys of some of the tributaries of the Milk river in Alberta and Saskatchewan and this development would undoubtedly continue were it not for uncertainty as to the quantity of water which Canada is entitled to divert from these streams under the provisions of the treaty. This question has also been referred to the International Joint Commission for adjustment.

THE SOUTHERN ALBERTA LAND COMPANY.

This company has been authorized to construct a system of works for the diversion of water from Bow river at a point on section 31, township 21, range 25, west of the 4th meridian, for the irrigation of a tract of some 380,000 acres of land between the Bow and Belly rivers, near their confluence, and eastward from that point towards Medicine Hat, Alberta. This land was sold to the company upon the condition that it should irrigate at least twenty-five per cent of the tract, and the company has also purchased a considerable additional area from other sources, so that it now owns over 400.000 acres, nearly half of which can be irrigated from the works now planned or under construction.

The works have previously been described and it may suffice to say that they consist of a very large diversion canal by means of which water is taken from the Bow river, during high and flood stages of the stream, and carried to a reservoir known as Lake McGregor. This reservoir has a capacity of some 360,000 acre-feet, or sufficient to provide for the irrigation of about 180,000 acres. From this reservoir the water is carried eastward by one large canal for a distance of some forty miles to the westerly boundary of the tract to be irrigated and from this point onward the main canal is tapped at several points by subsidiary canals. The main canal continues in an easterly direction to the Bow river, which is crossed by means of a siphon. An additional reservoir has been located some fifteen miles east of the river crossing and provision has been made, by a system of subsidiary canals, for the irrigation of land which the company owns in the vicinity of Suffield.

The company's dam across the Bow river at the point of diversion has been completed and the canal from this point to the main reservoir is now approaching completion. The huge earthen dams at either end of the reservoir and the outlet gates at

the lower end are ready for use, but considerable work remains to be done on the canal system east of the reservoir. The siphon across Bow river has not yet been built. The company expects to have the system in partial operation within a year from this date, although its contract with the government does not call for the completion of the works until March, 1919.

THE ALBERTA LAND COMPANY.

The Alberta Land Company has purchased from the government a tract of some 67,000 acres lying northeast of the tract of the Southern Alberta Land Company and has been authorized to construct works taking water from Bow river, through the works of the latter company, for its irrigation. It is required to irrigate at least twenty-five per cent of the tract sold, but can, and probably will, irrigate fifty per cent. Its canal system has all been located and it is expected that a considerable proportion of the work will be completed during the present year. Authorization for the construction of the works was granted on February 29, 1912, and a period of three years was allowed for their completion. It will probably be necessary to somewhat extend the time allowed for the construction of these works, and, according to the provisions of the agreement for the sale of the land, the company has until February, 1919, to complete its works and have them in operation.

HYDROGRAPHIC SURVEYS.

Hydrographic survey work, or stream measurement and reservoir surveys have been carried on by the Irrigation Branch of the department since 1894. For a few years considerable attention was given to this work and much valuable information was collected, notably that which demonstrated the feasibility of irrigating the district between Lethbridge and Cardston, which is now served from the canal system of the Alberta Railway and Irrigation Company, and the larger tract near Calgary now being irrigated from works constructed by the Canadian Pacific Railway Company. After a few years the limited appropriation and the increasing work of inspection in connection with irrigation projects brought about a partial abandonment of hydrographic work and for several years no systematic measurement of stream flow was attempted and reservoir survey work was entirely discontinued.

The increasing demands for water for irrigation, industrial and domestic purposes, due to the rapid settlement of the West, finally made it imperative that more accurate information should be obtained of the water available for such uses, and, in 1908, a small appropriation was made for the purpose of taking up the work of stream measurement in a systematic manner. Little actual field-work was done in that year, but the necessary instruments and equipment were purchased and in 1909 several parties were sent out for the purpose of installing gauging stations at suitable points on the principal streams in the irrigation district. This work has been systematically continued since 1909 and has gradually been extended as far as funds permitted until we now have a fairly accurate knowledge of the flow of these streams. It will be necessary, however, to continue these observations for several years more before the records can be considered reliable.

The increasing demand for water for domestic uses in the rapidly growing towns in the provinces of Alberta and Saskatchewan has very forcibly demonstrated the necessity of extending the work of stream measurements beyond the limits of the irrigation district, but it has not been found possible to very materially extend the scope of the work within the limits of the present appropriation. The appropriation for hydrographic work, including the special work on St. Mary and Milk rivers in connection with the International Waterways Treaty, has been as follows:—

1908-9							 								\$10,000
1909-10										٠					20,000
1910-11		 										٠			25,000
1911-12	 														51,500

For the year 1912-13 the hydrographic work has been placed under the supervision of the Commissioner of Irrigation, instead of being conducted as a separate organization as was formerly the case, and an appropriation of \$100,000 has been voted for carrying on the whole work. While this is in excess of the total appropriation for both services in the past year, it is not sufficient to permit of all the really important work being taken up, and little, if any, new work can be undertaken. The limited appropriation will only permit of continuing the work of irrigation inspections and observations of stream flow at stations already established.

CONTOUR SURVEYS.

The importance of this work cannot be over-estimated, but it has been impossible to carry on the work in an adequate manner with the limited appropriation available for irrigation administration. The importance of this branch of the work seems to have been clearly realized in the years immediately following the enactment of the first Irrigation Act and much valuable work was done. The inception of the three great irrigation projects—the Alberta Railway and Irrigation Company, the Canadian Pacific Railway Irrigation Company and the Southern Alberta Land Company—was due, primarily, to the pioneer work done by this branch in developing contour surveys. The importance of the work is no less pressing to-day, and it is greatly to be regretted that funds are not available for carrying it on systematically.

At present there are no available data regarding elevations, except the old irrigation survey bench marks and the railroad elevations and these are meagre. It is absolutely impossible to intelligently study any general or large question of water-supply, or water conservation, unless a good general idea of the topography of the country has first been gained; that is, the relative elevations of the various streams and the interlying country must be determined. Two instances may be cited to illustrate this:

The government of the province of Saskatchewan has applied, under the provisions of the Irrigation Act, for permission to divert a very large volume of water from the South Saskatchewan river to supply the domestic requirements of the cities of Moosejaw and Regina and a considerable tract in that vicinity. These cities, along with other towns and villages in the same neighbourhood, are confronted with a serious water problem and the only adequate and permanent source from which they can be supplied seems to be the South Saskatchewan river. The project will involve the expenditure of millions of dollars and it is not safe to decide upon any definite line of work in connection with it until the topography and critical elevations of an enormous tract of country have been developed. Had the work of contour surveys been thoroughly developed in this section it would be possible to make an office study of the more important features and to select the most feasible general location for the necessary works. Field development work could then be confined to a comparatively small area. As the matter stands to-day a large amount of money must be spent on surveys to determine whether or not the project is economically feasible.

Under the provisions of the International Waterways Treaty this government will probably not be in a position to deliver to the Alberta Railway and Irrigation Company the full quantity of water which it is entitled to divert from St. Mary and Milk rivers. The deficiency should be supplied from some other source and a reservation has been made against the flow of Belly river. Owing to lack of knowledge of the topography of the interlying country it is impossible to say at present whether or

not it is feasible to divert the required quantity of water from Belly river to the land to be irrigated within reasonable cost limits.

There are large tracts of land in Southern Alberta and Saskatchewan, the value of which can be enormously increased by irrigation, but the cost of the necessary works is entirely beyond the reach of individual land-owners and it is doubtful whether it would be good public policy to permit companies to acquire these lands and to construct the works necessary for their fullest development. Water must be conveyed long distances and drawn from streams whose normal flow has, in most cases, been already fully appropriated. Resort must be had to reservoiring on the head-waters of these streams, and, as this will affect many other interests, such as water-power, the domestic supply of cities and other irrigation projects, the privilege of constructing such reservoirs should be sparingly granted. A better plan would be for the government to construct and operate such reservoirs in the general interest of all the district that may be served by them.

DUTY OF WATER.

One of the most important questions to be settled in connection with irrigation administration is the 'duty of water;' that is, the area of land which can be sufficiently irrigated by one cubic foot of water per second flowing constantly throughout the irrigation season, or the equivalent of such flow applied to the land during a shorter period of time.

The duty of water as defined in the Irrigation Act was never intended to be the final word on the subject, in fact it was to some extent an experiment, and the time has now arrived when experimental work should be undertaken to determine with some degree of exactness the quantity of water required for the production of the various crops grown within the irrigation district, under the varying conditions of soil and climate.

The question of fixing, or readjusting, the 'duty' has often been discussed and at the last convention of the 'Western Canada Irrigation Association,' held at Calgary in August, 1911, the following resolution was adopted:

'Whereas a knowledge of the practical duty of water for various crops has a most important bearing on irrigation development; and whereas information upon this important question available in any of the provinces of Alberta, Saskatchewan and British Columbia is vague and incomplete;

'Therefore, be it resolved that the attention of the governments interested should be directed to this important matter, and that they should be urged to carry out a thorough system of investigation to determine the duty of water in the different provinces and for the different crops, so that such duty may then be determined with approximate exactness.'

DRAINAGE.

A great many applications have been received for permission to drain lakes, sloughs or other bodies of water controlled by this department under the provisions of the Irrigation Act, and to acquire, by purchase or otherwise, the lands to be so reclaimed. These applications fall naturally into three general classes:—

- 1. The drainage of large tracts of marshy land, or areas of combined land and water. Some of these applications cover hundreds of thousands of acres.
 - 2. The drainage of small lakes or sloughs.
- 3. The reclamation of fractional quarter-sections of land abutting upon a lake or slough.

With respect to the first class the applicants have not, as a rule, furnished sufficiently precise information as to the feasibility of the proposed undertakings to

warrant the sale to them of the large tracts affected. Before the department would be justified in disposing of such considerable bodies of land it should be shown clearly that the land in its present condition is not fit for cultivation; that its reclamation is feasible within reasonable limits of cost; that the character of the soil is such as to make it suitable for cultivation when drained and that the draining away of the bodies of water will not injuriously affect any other interests—in other words, that the absence of the water is of more benefit than its presence.

An additional difficulty in dealing with such applications is the fact that full control of the drainage of land is by law vested in the provincial governments, while the water and the land are controlled by the Dominion. The proper method of procedure would appear to be for applicants for drainage rights to first secure the approval of the provincial government and a formal authorization for the construction of the proposed works under the provincial drainage laws and then to apply to this department for permission to drain away the bodies of water affected and to purchase the land to be reclaimed. In the event of failure to secure authority from the province for the construction of the works application might be made direct to this department and it would then become necessary to ascertain to what extent the Dominion government has the right to reclaim, or improve, its own lands in order to promote the settlement and development of the country.

In connection with the drainage of small lakes, or sloughs, sufficient information is usually given by the applicants to permit of determining the feasibility of the project from an engineering point of view. The chief difficulties in dealing with these applications are: (1) Uncertainty as to whether the works are to be constructed under provincial legislation respecting drainage; (2) similar uncertainty respecting the attitude of the provincial governments towards the projects, and (3) objections raised by owners of adjacent lands. In cases where the projects are opposed by other land-owners in the vicinity, and where authorization has not been granted by the province for the construction of the required works, this department would appear to be stopped from granting approval for the draining away of the bodies of water affected, and, consequently, from disposing of the land subject to any conditions as to its drainage.

The drainage of fractional quarter-sections and the disposal of the land so reclaimed present few difficulties from an administrative point of view. The provincial governments do not, as a rule, require that such works be constructed in accordance with their laws, and, except where objections are raised by neighbours, this department usually approves of the plans and authorizes the draining away of the water. If the remainder of the quarter-section has been patented to the applicant as a homestead or pre-emption, supplementary patent is usually issued without cost for the reclaimed area, but where the land is not so held the area reclaimed is sold at a

fair valuation.

WOOD BUFFALO.

In the vicinity of the Great Slave river is a herd of wood buffalo which has been variously estimated at from one hundred to three hundred head. It was decided last year that this Department should take some steps directly to protect this herd in addition to the work of the Mounted Police. Two men were therefore appointed for the purpose of trying to locate and number the buffalo herd, to determine what were the causes of destruction of these animals and to destroy the wolves that might be found preying upon the herd. An experienced trapper, Mr. Peter McCallum, and Mr. G. A. Mulloy were appointed, Mr. Mulloy being a young man of education who would be able to report on the work done. Attached are copies of reports received from Mr. Mulloy. Up to the last reports it had not been possible to get any estimate of the herd. As they range over a large territory which is largely wooded it will be extremely difficult

to get an accurate enumeration. Little sign of wolves was seen and none were captured.

A proposal is made by Mr. A. J. Bell, the Government Agent in that district, that the buffalo should be confined by a fence in the peninsula between the Peace and Great Slave rivers where they could be better protected. Some such plan may be the best final solution of the question. For a fence of sufficient strength to confine the buffalo the cost would be large. The cost of the fence around the Buffalo Park in Saskatchewan was on the average \$\$28.50 per mile, and such a fence could hardly be erected more cheaply, and at this price the fence required, estimated by Mr. Bell at 125 miles, would cost \$103,562.50.

REINDEER HERD.

At the suggestion of His Excellency Earl Grey, the Governor General, the then Minister of the Interior took up with Dr. W. T. Grenfell a proposal for sending to the Mackenzie river a shipment of reindeer from the herd in Newfoundland under charge of Dr. Grenfell. It was considered that the deer would prove much more valuable than dogs for transportation purposes, and, as they could feed themselves on the moss which grows in the northern districts and would themselves be of value for food, they would become not only a most useful adjunct to travel in such districts but also a source of wealth. In Lapland, the home of the domesticated reindeer, a man's wealth is reckoned by the number of deer he owns, and a similar state of affairs is developing in Alaska where reindeer were introduced by the government of the United States. Alaska is now exporting reindeer meat to the markets of the United States, a shipment of two thousand carcasses having been received recently in Chicago.

Under instructions I discussed the matter with Dr. Grenfell, and on the 9th June, 1911, he submitted a written statement of the terms on which he would supply fifty deer from his herd to the Department. The terms were \$51.30 per head, young and strong breeding does and stags to be supplied. Three herders were also to be supplied and three herd dogs. This offer was submitted and authority given for its acceptance. The purchase was, therefore, made and the shipment carried out under charge of Mr. E. F. Drake, whose report attached hereto gives full particulars in regard thereto.

The loss of deer on the route was nineteen. While this was a heavy loss, part of which might have been avoided, it may be pointed out that the shipment had to be made in a rush and that it will have to be done in the same way in any future shipment. The deer cannot be taken across Canadian summer weather, as they will not stand the heat. They cannot be taken across in winter unless provision is made for a supply of reindeer moss near Edmonton, as the rivers are frozen and they cannot be transported beyond that point. They cannot be moved in the spring, as that is the fawning season. There is, therefore, only the short season left between the close of summer and the 'freeze-up' of the northern rivers.

At last accounts in March the herd were doing well and the prospects are that the experiment will be fully successful. As the herd is a small one and in order to develop a herd large enough for stocking the northern districts in a reasonable time, a considerably larger herd should be started, it would seem advisable that an addition to the herd should be made in 1913, as the success of the experimental shipment would then be fully determined, and that the shipment should be large enough to furnish the stock necessary for future development. The Government of the United States imported twelve hundred and eighty reindeer to Alaska to start the industry there, and the herd introduced into Newfoundland by Dr. Grenfell numbered three hundred.

CORRESPONDENCE.

Statement of letters, etc., received and sent out by the Forestry Branch during the fiscal year beginning April 1st, 1911, and ending March 31st, 1912:—

Number of letters received	17,815
Mail sent out:—	
Letters, circulars, etc 68,615	
Bulletins and reports	
Parcels	
Total	216.322

Respectfully submitted,

R. H. CAMPBELL, Director of Forestry.

No. 2.

REPORT OF H. R. MACMILLAN.

DEPARTMENT OF THE INTERIOR,
FORESTRY BRANCH,
OTTAWA, June 20, 1912.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa.

SIR,—In submitting herewith my report on the work with which I have been connected during the past year, I wish to draw attention particularly to the fact that the greatest difficulty which now faces the Forestry Branch is the difficulty of getting a class of men to take charge of the executive work in the field who are capable of doing the work required by the Forestry Branch, and who are willing to exert themselves to get it done.

The area of the forest reserves at present actually administered by the Forestry Branch is about 14,948,000 acres, or slightly greater than the combined areas of the two provinces of Nova Scotia and Prince Edward Island.

The Forest Reserves and Parks Act places upon the Forestry Branch the responsibility of protecting this area from fire, and provides that no use shall be made of any of this area except upon terms which require the personal attention of a forest officer.

Not only is the forest reserve area as large as a principality, but it is widely scattered and consists of the most inaccessible and impenetrable brulé, muskeg, mountain and forest land in the west. The great distances to be covered and the impassable nature of a large proportion of the country at different seasons of the year render it impossible for any inspecting officer to personally initiate, execute or supervise the work on the whole area.

During the past year the Dominion Forest Reserves were divided into three inspection districts, as follows: Manitoba, including all the forest reserves in Manitoba and the Beaver Hills and Moose Mountain in Saskatchewan, a total area of 2,739,000 acres; Alberta, including all the forest reserves in Alberta and the Cypress Hills and Pines in Saskatchewan, a total area of 11,816,000 acres; and British Columbia, including all the forest reserves in the railway belt, a total area of 392,000 acres. Each inspection district is in charge of an inspector who spends his whole time in the district, and who is responsible to the head office for the planning, supervision and inspection of the work in his district.

Within each inspection district the actual administrative units are the forest reserve. Large reserved areas, such as the eastern slope of the Rocky Mountains, are divided into administrative units of from 1,000,000 to 4,000,000 acres each. Thus the original Rocky Mountain Forest Reserve has been subdivided into the Crowsnest, Bow River, Clearwater, Brazeau and Athabaska Forest Reserves.

The executive head of each forest reserve is the forest supervisor. The forest supervisor is held responsible to the District Inspector and to the head office for the planning and execution of all the work which must be done in order to make the reserve accessible and safe from fire; for the training of a staff of forest rangers, and the personal direction of the examination and survey of surface rights applied for, timber to be sold, and the handling of grazing business. When it is understood that the Forestry Branch at present, in the work of making the reserves accessible and in improving fire protection, requires supervisors to locate and build wagon roads, pack-trails, and telephone lines through swampy and mountainous country, to build ranger stations, to transact a large volume of public business, and to keep accurate records, it will be understood that the position of forest supervisor cannot be satisfactorily filled except by a man who has had a thorough training in handling men or in some executive position of a similar nature, and who possesses energy, initiative and high ideals of public service.

The forest reserves are together larger than Nova Scotia. In one inspection district alone, that in Alberta, the inspector could not cover his whole district once a year in detail if he travelled the whole time. Therefore, inspection alone cannot be relied upon to prevent a loss or misdirection of time and money in the work on the reserves. The forest supervisor, who is on the forest reserve all the time, is the one man whom the Forestry Branch can depend upon to see that every measure is being taken to prevent forest fires, that trespass is being prevented, and that the resources of the forest reserve are being administered in accordance with the terms of the Forest Reserves Act. If the loss of money and the loss of timber are to be prevented, if the whole forest reserve policy is not to be rendered farcical, the forest supervisor must be a man who will be led to do his best because of his interest in his work and not because of any fear of inspection. In case he is not such a man, he should be amenable to discipline by his inspector.

For convenience in administration each forest reserve is divided into ranger districts, varying in size according to the needs of the country from 20,000 to 500,000 acres. The forest rangers are really the fingers of the organization. The supervisor is the business manager of the forest reserve, but the forest ranger must do the work. If the forest ranger for a particular district is unable to do the work required of him, it immediately becomes necessary to neglect that district or to hire another man; to follow the first course frequently involves hundreds of thousands of dollars loss by trespass or fire, and to follow the second course involves an otherwise needless yearly expenditure of several hundred dollars for each unsatisfactory ranger.

The forest ranger who is not accustomed to life and work in the woods, who is not physically equal to hard manual labour, to travel, or to fighting fire under adverse conditions, and who is not qualified by experience and ability to manage men, to estimate timber, to do compass surveying, to locate and build trails and bridges, and who has not sufficient education to make intelligent reports is not capable of performing the duties of a forest ranger and is an impediment to the work of the Forestry Branch.

Men who have the above qualifications can be secured in every district in which Dominion Forest Reserves are located, and can be secured for the salaries now paid forest rangers. The only way in which they can be secured is by competitive examination, conducted under civil service regulations. The only way such men can be kept is by giving them permanent employment, and by making it clear that the efficient men will be promoted and that no others will.

The above principles of forest reserve organization are so well recognized that Canada is now the only country in the world which does not select forest rangers by competitive examination and promote them for efficiency.

The average supervisor in the Forestry Branch has charge of an area of over 1,000,000 acres of land. The average forest ranger has charge of over 200,000 acres of land. This land, including the young and mature timber, is worth at least ten dollars per acre. Supervisors are solely responsible for the protection and improvement of over \$10,000,000 worth of government property and so long as forest rangers are the only agents upon whom they may rely to get the work done, it will be impossible to throw too many safeguards about the position of forest ranger and of forest supervisor, or to select too carefully the men chosen for the work.

The Dominion Government is lagging behind the Provinces in this respect. The Province of Quebec has established a school for the training of forest rangers. The Province of British Columbia has passed a law providing that all appointments to the Provincial Forest Branch shall be made by a civil service commission and that all appointees shall serve under civil service regulations. It has further been provided that the superior officers of the local Forest Branch shall constitute a civil service commission to appoint and govern all changes in rank, whether to a higher or a lower grade, of the employees of the Forest Branch.

Respectfully submitted,

H. R. MACMILLAN.

No. 3.

REPORT OF A. KNECHTEL.

DEPARTMENT OF THE INTERIOR,
OTTAWA, March 31, 1912.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa.

SIR,—I have the honour to submit hereby my fourth annual report, which describes the work done on the Dominion Forest Reserves during the year ending March 31, 1912.

There were employed on the reserves four forest surpervisors, eighteen permanent rangers, twenty-eight temporary rangers, who were employed only for the summer months, six forest engineers who are university graduates in forestry, and seven undergraduates in forestry, who assisted in making certain forest surveys. Labourers and fire-fighters were employed as necessities required.

FOREST FIRES.

Generally speaking the summer was rather favourable for the forest reserves in regard to fires. In the danger months of the spring the precipitation was in excess of, and the mean temperature was below the normal. In September and October there was deficiency of rain-fall, but during August there were exceptionally heavy rains, which saturated the ground in the woods so that it remained moist during the fall months.

There were local drouths, however, during which fires occurred in several places. In western Manitoba there was a dry period in the latter part of April and the first part of May, and at this time fire broke out in the Riding Mountain, Duck Mountain and Turtle Mountain reserves.

In May and during the first part of June, there was wet weather in Saskatchewan and Alberta, but this did not extend to the Cypress Hills in the south, and fires there destroyed a large acreage of grass. Nor did the heavy rains of May extend to the northern part of the Rocky Mountains, and there a fire occurred destroying 50,000 feet of spruce timber.

The weather in Manitoba was wet in July, yet during that month four fires broke out on the Turtle Mountain reserve. This reserve is not well wooded. It is mostly covered with grass, with patches of young poplar here and there. There is a comparatively small area covered with large trees, and therefore there is little break to the wind, which on all the prairie provinces has great velocity, and a few fine days at any time during the summer cause the grass to become very dry and fires run through it easily. In the West, on any reserve not well timbered, a fire may occur even when the weather may be considered wet.

NUMBER AND LOCATION OF FIRES.

The forest rangers reported 73 fires as having occurred on the forest reserves during the year as follows: In Manitoba—Riding Mountain, 42, Duck Mountain, 10, Turtle Mountain, 16; in Saskatchewan—Cypress Hills, 3; in Alberta—Rocky Mountain Reserve, 1; in British Columbia—Tranquille Reserve, 1.

The fires in the Riding Mountains occurred in the months of April and May in the following districts: Township 18, ranges 15 and 17; township 19, ranges 16, 17 and 18; township 22, range 26; township 23, ranges 25 and 26; township 24, ranges 25, 26 and 27; and township 25, range 25.

Altogether about 136 square miles were burned over and 2,525,000 feet of saw timber was killed consisting of spruce, tamarack, jackpine and poplar. Young growth, mostly poplar, was destroyed to the extent of twenty square miles. Labour in fighting these fires cost \$295.25 as wages, and \$132.62 for provisions.

In the Duck Mountains the fires occurred in April and May in the following localities: Township 25, range 28; township 26, range 26; township 27, range 27; township 28, range 27; township 32, range 30; and township 33, range 29. Fourteen thousand three hundred and twenty acres were burned over, 35,000 feet of spruce were killed, and 4,500 acres of young poplar scrub were destroyed.

Besides the above mentioned fires which were on forest reserve property, a fire occurred on Timber Berth No. 986. It burned over an area of about sixteen square miles, but destroyed no merchantable timber. It began in township 26, about the line between ranges 24 and 25, and took a northeasterly course, burning a strip somewhat over a mile wide until it reached township 28, range 24, when it then took an easterly course and stopped close to the range line. Eighty-six men were employed in fighting this fire. The expense was \$529 for labour and \$198.25 for board.

The total cost of fighting fires during the year on the Duck Mountains was \$1,265.05, in wages, \$80.75 in provisions and \$108.25 in board.

On the Turtle Mountain Reserve fires occurred in April in township 1, ranges 19, 21 and 22, and in July in township 1, ranges 20 and 21. About 4,000 acres of grass was burned. No saw timber was killed, but scattering young poplar which stood over the area was destroyed. The cost of fighting the fires was \$45.

On the Beaver Hills Reserve in Saskatchewan a fire broke out, but was fortunately extinguished by the forest ranger before it had done any damage. Two men were prosecuted and fined \$100 and costs.

The Cypress Hills in Alberta had three fires on the following areas: Township 8, range 24, west of the 3rd meridian; township 7, range 1, west 4th meridian; and township 7, range 8, west 4th; 15,740 acres of grass was burned. One man was prosecuted and fined \$25 and costs for carelessness in leaving a camp fire unextinguished. The cost of fighting the fires was \$63.

On the Rocky Mountain Reserve a fire broke out one and a half miles south of Prairie Creek in township 50, range 25, west of the 5th meridian. It covered twenty acres and destroyed 50,000 feet of spruce timber. The ranger extinguished this fire without extra help.

Only one fire is reported from the reserves of British Columbia. On the Tranquille Reserve a small fire broke out but was extinguished before it had caused any destruction of timber. The cost was \$78.50 for wages and \$17.10 for provisions.

EFFECT OF FIRES.

Fire running through young growth almost invariably kills it. Trees about six inches in diameter at the stump are usually killed, if there is much grass or shrubbery among them, or if they stand close together. They are always killed, as are also much larger trees, if there is much heavy, dry material on the ground. Otherwise, trees twelve inches and over, if they belong to thick barked species such as pine and spruce, frequently escape a ground-fire.

In travelling last summer over the Long Lake and Hat Creek Reserves in British Columbia, I observed that such thick barked species as Douglas fir and bull pine had their bases much blackened by repeated fires; but they were still alive and their foliage was of a healthy colour. There was an absence of trees of pole-wood size; but the ground was in many places covered with a fine growth of young reproduction material. This is evidently repeatedly damaged by fire before it reaches the dimensions of pole-wood.

In the Dominion forest reserves fires run usually on the ground. Crown-fires are by no means frequent. However, a crown-fire sometimes gets started in the foliage of young jackpine and spruce standing close together and causes much damage. Some large areas of fine young lodgepole pine in the Rocky Mountains were thus destroyed in 1910.

With repeated fires running through the forest, only trees with strong advantages can survive. Spruce is rather weak. Conifers are reproduced only from seed, and spruce does not bear every year. Besides, the species does not seed early in the life of the tree. Fire makes a good seed-bed, but if it occurs in a year when spruce is not throwing seed, the good bed is of no avail. In the following year the ground will be grown over with grass and various kinds of shrubs. Trees left alive by the fire may then throw seed, but this, falling among grass leaves and shrubs, is likely to perish. Fire going through spruce woods, therefore, often destroys it so that the ground is not again covered with the same species.

Jackpine and lodgepole pine have advantages which permit them to hold possession of the soil for a much longer period than spruce. They bear seed early. The cones remain on the trees for a long time, sometimes ten years without shedding the seed, which retains its vitality. A fire going through the woods may kill every tree, but it makes a good seed-bed and opens the cones, and soon the ground becomes covered with a growth of young pines so dense that one can penetrate the thicket only with great difficulty. On account of these advantages the jackpine in Northern Ontario and the lodgepole pine in the Rocky mountains have taken possession of very large areas formerly occupied by spruces, firs and other pines.

Poplars and white birch trees have some strong advantages over the evergreens. They seed oftener. The seeds germinate and grow freely, while the evergreens require a good seed-bed. But the greatest advantage they have is that they reproduce from

the root. Therefore, if poplar and white birch get full possession of the ground they are likely to hold it. They have a great disadvantage, however. They are very subject to attack by fungi. This is especially true of the poplar. Therefore, if an even mixture of these and evergreens gets started, the evergreens are likely to persist, and by throwing much shade give good conditions for the fungi to attack the broad-leaved trees. Under such circumstances the mixture is likely to become gradually more evergreen.

RANGERS' PATROLS.

The rangers' duties necessitate that they should do much travelling. Besides superintending development work on the reserves, as described in this report, they moved about on the lookout for fires and trespass. In the spring of 1911, they also granted requisitions for timber to be taken from the reserves and for this purpose they met the settlers at appointed places. During the year the average distance travelled in the discharge of such duties was 3,489 miles per ranger.

FIRE NOTICES POSTED.

During the year, 2,855 fire notices were posted on the forest reserves as follows: Riding Mountain, 575; Duck Mountain, 719; Porcupine, 44; Spruce Woods, 19; Turtle Mountain, 120; Moose Mountain, 11; Beaver Hills, 290; Cooking Lake, 54; Rocky Mountain, 593; Long Lake, 43. Total, 2,468.

BURNED GUARDS.

During the spring of 1911, one hundred and twenty-nine miles of fire-guard were made along the boundaries of the reserves by burning out the sloughs, as follows: Along the Riding Mountain Reserve, 8 miles; Duck Mountain, 12 miles; Porcupine, 84 miles; Beaver Hills, 18 miles; Pines Reserve, 7 miles. The cost of burning was \$50.

PLOUGHED GUARDS.

One hundred and eighty-eight and one quarter miles of ploughed guard were made along the boundaries of the forest reserves at an average cost of \$11.10 per mile, the average width being 11.5 feet as indicated in the following table:—

TABLE OF PLOUGHED GUARDS.

Name of Reserve.	Miles of Guard.	Width in Feet.	Cost.
Riding Mountain. Spruce Woods. Beaver Hills. Cypress Hills. Cooking Lake. Rocky Mountains	$ \begin{array}{c} 36\frac{3}{4} \\ 32 \\ 16\frac{1}{2} \\ 83 \\ 13 \\ 7 \\ \hline 188\frac{1}{4} \end{array} $	10 16 8 10 20 10 Avg, 11½	\$ ets. 802 20 359 30 172 50 617 00 65 00 63 75 2,079 75

TRAILS.

Eight hundred and fifty-nine miles of trail were made on the reserves during the summer of 1911 as follows: Riding Mountain, 14½ miles; Duck Mountain, 4; Porcu-

pine Mountain, 63; Moose Mountain, 21; Beaver Hills, 15; the Pines, 28; Cooking Lake, 20; Rocky Mountain, 688½; Long Lake, 5. Trail making consisted mostly in cleaning out old trails, which in many places was equivalent to making them new, as so many trees had fallen across them and so much brush had grown up. These trails facilitate patrol by the rangers and are therefore a means of guarding the forest against fire and trespass. The cost of cleaning out old trails was \$1,825.45, of making new, \$224.08.

ROADS.

Ninety-nine and one-half miles of wagon road were made through the following reserves: Riding Mountain, 10 miles; Duck Mountain, 10; Moose Mountain, 8; Beaver Hills, 9½; The Pines, 17; Cooking Lake, 1½; Rocky Mountain, 43½. The average width is about 10 feet. On the Moose Mountain, 1,607 yards of grading was done, and on the Rocky Mountain Reserve, 210 yards. Sixteen small bridges were constructed and 92 culverts. The money spent was \$2,923.32.

BOUNDARIES LOCATED.

Four hundred and seventy-four and one-quarter miles of boundary line of the reserves was located by the forest rangers. On the Riding Mountain, 122½ miles; Duck Mountain, 48; Porcupine, 7; Turtle Mountain, 6; Moose Mountain, 1½; The Pines, 42; Cooking Lake, 9; Rocky Mountain, 236½; Long Lake, 2. These lines had been surveyed previously, but many stakes were missing and mounds destroyed.

Triangular reserve stakes marking the boundaries were driven as follows: Riding Mountain, 47, Duck Mountain, 26, Spruce Woods, 10, Turtle Mountain, 11, The Pines,

14; total, 108.

BOUNDARY LINES CUT OUT.

During the year the rangers cut out 76½ miles, 16 feet wide; 11 miles, 12 feet wide; 11 miles, 9 feet wide; and 34½ miles, 8 feet wide. A ploughed guard ten feet wide was put along 36¾ miles of the 16-foot line. The cutting was distributed on the reserves as follows:—Riding Mountain, 41½ miles, 16 feet wide and 11 miles, 9 feet wide; Duck Mountain, 23 miles, 16 feet wide and 32 miles, 8 feet wide; Spruce Woods, 6 miles, 16 feet wide; Turtle Mountain, 8 miles, 12 feet wide; The Pines, 3 miles, 12 feet wide; Cooking Lake, 6 miles, 16 feet wide; Rocky Mountain, 2¼ miles, 8 feet wide. This gives a total length of 132¾ miles with average width 12·2 feet. The cost was \$4,534.25, or \$34.16 per mile 12·2 feet wide.

BUILDINGS.

During the summer of 1911 eighteen cabins were built on the reserves for forest rangers. These were erected by the rangers themselves, sixteen on the Rocky Mountain Reserve, one on the Duck Mountain Reserve, and one on the Cooking Lake Reserve. They are made of logs, each 14 feet by 16 feet floor measurement, and have walls 8 feet high. There is a good board floor and board roof, the latter covered with progress sheething.

There are two cabins, however, so far removed from lumber that the ranger was obliged to hew all the material for the floors and roof. These are in the Rocky Mountain Reserve, in a northerly district which lies between the Clearwater and White Goat

rivers

Each cabin contains a stove with cooking utensils, a table, bed, tent, and tools for fighting fire.

In the Rocky Mountains, the cabins are located as nearly as possible thirty miles apart, which is a good day's journey in that mountainous country. Each ranger can, therefore, manage to pass the night with another either north or south of his district.

The cost of erecting these buildings was as follows:—Lumber, \$432.76; plaster and paint, \$195; labour, \$477.97; equipment, \$1,367.52; teaming, \$417.25. Total, \$2,890.50. The average cost per cabin with equipment was \$149.86.

A forest ranger's house was repaired in the Riding Mountains, the cost being \$295.84. In 1910, the southwest quarter of section 3, township 19, range 18, west of the principal meridian, which lay adjacent to the Riding Mountain Reserve was purchased as a ranger's headquarters. The house, however, was in rather bad condition, but these repairs have made it quite comfortable.

Two houses on the Cypress Hills have, since last spring, been occupied by forest rangers. These formerly belonged to settlers who, with a number of others, were removed from the reserve, the department allowing them recompense for their holdings. So there are now twenty-one buildings on the reserves inhabited by forest rangers.

THE SAWMILLS.

Previous to the winter of 1911 sawmills were not permitted to locate on the forest reserves. My report of 1909 recommended that portable mills should be allowed to enter under certain restrictions stated therein. In the fall of 1910 the department made an attempt to carry the recommendation into effect. The form of contract, however, though allowing a millman to place his mill inside the reserve, did not allow him to do his logging or run his mill before he had received permits from the settlers. As settlers do not, as a rule, apply for permits before February, the mill would have to stand idle until that month. Hence the millmen rejected the contract.

In the fall of 1911, mills were permitted to enter the Riding Mountain Reserve for the purpose of cutting timber that had been killed by fire in the preceding spring. There were about 900 acres in all, in 6 parcels, in township 19, ranges 17 and 18, west of the principal meridian, containing timber estimated at 1,870,000 feet, board measure. The timber was disposed of by tender at an upset price of \$2 per thousand feet, and this was about the price bid for it. It was put up in ten lots and disposed of to four purchasers, who were allowed to place their mills within the boundaries of the reserve. No restrictions were placed upon the sale of the lumber.

A sawmill was admitted, also, to cut green spruce on the northwest quarter of section 16, township 22, range 21 west of the principal meridian. This mill is allowed to dispose of lumber only on settlers' permits, but it was permitted to log and saw a quantity of timber not exceeding 100,000 feet board measure in advance of the receipts of permits. This allows the millman to do some of his logging and sawing in early winter.

The privilege to locate this mill was put up by tender, and was disposed of for \$50, the successful bidder agreeing to saw spruce, pine, tamarack and balsam fir for \$9 per thousand feet, poplar for \$10, and other species for \$9. As the settler pays for his permit \$1.50 per thousand for poplar, and \$3 for other species, this, with the millman's charges for logging and sawing, allows the settler his lumber at \$11.50 for poplar and \$12 for other species—pine, spruce, tamarack and balsam fir.

The mill is under supervision by the department and the logging and sawing are carried on according to approved forestry methods.

A mill in the Cypress Hills Reserve, in Alberta, has been under forestry regulation for three years. I visited this mill in July and found the work being well done.

Only such trees as had been previously marked by the Forestry Branch were being cut; they were being cut down with a saw; stumps were being cut low; tops were being taken out of the woods; the brush was being piled and burned; and altogether the operation was satisfactory. The millman informed me that he was suited with the regulations.

A sawmill was operated also in the Rocky Mountain Reserve under forestry regulations. This was located in Section 28, Township 8, Range 4, west of the 5th 25—vi—3

meridian. On July 27, 1911, I inspected this milling operation. Although the stumps were not being cut as low as the regulation required, altogether the operation was an improvement upon the old way of lumbering.

LICENSE BERTHS.

The license berths operated on the forest reserves yield to the Department an annual ground-rent of five dollars per square mile, except for lands situated west of Yale in the province of British Columbia, in which case the yearly ground rent is five cents per acre. The dues on timber cut are: sawn lumber, 50 cents per thousand feet, board measure; railway ties 8 feet long, 1½ cents each, 9 feet long, 1¾ cents; shingle bolts, 25 cents per cord; 5 per cent on the sale of all other products excepting slabs and sawdust on which there is no royalty. The following table gives a statement of these berths:—

LICENSE BERTHS.

Reserve.	Province.	Number of Berths.	Area.	Lumber.	Laths.	Royalty.
Duck Mountain	Alberta	14 6 32 1 pt.	Sq. Miles. 152:66 43:75 692:50 38:50 927:41	Ft. B. M. 11,448,804 342,482 11,864,017 23,655,303		\$ cts. 5,742 36 49 64 5,151 69 10,943 69

SAWMILL PERMITS.

In the province of Alberta, permits were granted to cut timber over a definitely described tract not exceeding one square mile on payment of a fee at the rate of \$100 per square mile for each permit, a permit being good for one year from date of issue and renewable only once. The royalty dues are the same as those of license berths.

The Rocky Mountain Forest Reserve contains six of these berths, having a total area of 6.87 square miles. From these berths there were cut, during the year, a total of 1,412,667 feet, board measure, of lumber, the royalty from which amounted to \$685.74.

SETTLERS' PERMITS.

The following tables give statement regarding the settlers' permits issued on the reserves during the year:—

MANITOBA AGENCIES.

Reserve.	No. of permits.	Lumber.	Logs.	Cord-wood.	Fence posts.	Fence rails.	Roof poles.	Receipts.
Dauphin Agency. Riding Mountain Duck Mountain Brandon Agency.	780 296	Ft. B.M. 3,756,613 1,484,523	Lineal ft. 15,590 13,530	Cords. 4,500 820	No. 17,550 18,150	No. 17,320 5,200	No. 8,000 10,400	\$ cts. 2,176 90 875 97
Riding Mountain Turtle Mountain Spruce Woods Total	73 108 1,262	$ \begin{array}{r} 38,000 \\ 23,000 \\ 5,000 \end{array} $ 5,307,136	$ \begin{array}{r} 2,064 \\ 1,700 \\ \hline 32,884 \end{array} $	15 1,003 1,834 8,172	500 700 36,900	22,520		115 25 105 64 131 75 3,405 51

SASKATCHEWAN AGENCIES.

Reserve.	No. of permits.	Lumber.	Logs.	Cord- wood.	Fence posts.	Fence rails.	Roof poles.	Receipts.
Yorkton Agency. Duck Mountain Beaver Hills Estevan Agency.	27 35	Ft. B.M. 107,070	Lineal ft. 5,300 3,000	Cords, 20 378	No. 600	No.	No.	\$ ets. 21 75 12 25
Moose Mountain Moose Mountain ¹Prince Albert	84 2		820	1,259 14	750	900	1,050	121 10 4 00
Total	148	107,070	9,120	1,671	1,350	900	1,050	159 10

¹ Not reported.

ALBERTA AGENCIES.

Reserve.	No. of permits.	Lumber.	Logs.	Cord-wood.	Fence posts.	Fence rails.	Roof poles.	Receipts.
Edmonton Agency.		Ft. B.M.	Lineal ft.	Cords.	No.	No.	No.	\$ cts.
Cooking Lake	20	18,500	14,750	120	2,820	8,209	1,900	15 00
Lethbridge Agency.								1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Rocky Mountain	14		11,500	85	1,700	3,900	1,850	23 50
Medicine Hat Agency.								
Cypress Hills	308		423,665	4,908	75,500	160,995	61,558	90 00
Total	342	18,500	449,915	5,113	80,020	173,095	65,308	128 50

SUMMARY OF SETTLERS' PERMITS.

	Reserve.	No. of permits.	Lumber.	Logs.	Cord- wood.	Fence posts.	Fence rails.	Roof poles.	Receipts.
			Ft. B.M.	Lineal ft.	Cords.	No.	No.	No.	\$ cts.
Sask	nitoba Agencies katchewan Agencies erta Agencies	1,262 148 342	5,307,136 107,070 18,500	32,884 9,120 449,915	8,172 1,671 5,113	36,900 1,350 80,020	$22,520 \\ 900 \\ 173,095$	18,950 $1,050$ $65,308$	3,405 51 159 10 128 50
	Total	1,752	5,432,706	491,919	14,956	118,270	196,515	85,308	3,693 11

TOTAL OUTPUT OF THE DOMINION FOREST RESERVES.

	Lumber.	Lath.	Logs.	Cord- wood.	Fence posts.	Fence rails.	Roof poles.	Receipts.
License Berths Sawmill Permits Settlers' Permits	Ft. B. M. 23,655,303 1,412,667 5,432,706 30,500,676	815,700	491,919	14,956	118,270		85,303	\$ cts. 10,943 69 685 74 3,693 11 15,322 54

TIMBER SEIZURES.

The following table shows the timber seizures made by the forest rangers during the year:—

Reserve.	No. of Seizures.	Lumber.	Logs.	Cord- wood.	Fence posts.	Fence rails.	Roof poles.	Dues.
Riding Mountain	33 11	Ft. B. M. 431,976 112,783	Lineal ft. 500 1,504	Cords.	Pieces.		Pieces.	\$ cts. 3,637 00 759 63
Spruce Woods. Beaver Hills. Cooking Lake. Rocky Mountain.	7 1 1		1,880 560	17 5				148 00 13 00 10 00 5 00
Total	55	544,759	5,470	205	2,470	9	420	3,972 63

HAY PERMITS ISSUED.

The following table shows the number of hay permits issued on the various reserves:—

Reserve.	No. of Permits.	Tons Cut.	Revenue.
Riding Mountain Turtle Mountain Spruce Woods Beaver Hills. Moose Mountain. Cooking Lake. Cypress Hills. Total.	33 15 8 26 15 48	750 615 260 104 660 298 1,848	\$ cts. 100 00 77 00 33 50 14 40 79 00 170 25 162 00 632 15

FOREST SURVEYS.

A forest survey of the Porcupine Hills in southern Alberta was made by Forest Engineer E. G. McDougall with a party of three forest assistants. The object of the survey was to determine what lands should be set aside as a forest reserve. Attention was given, therefore, chiefly to the location of a boundary line, although a cursory

description was made of the interior. As a result Mr. McDougall recommended that the reserve should consist of 198½ square miles. The fifth meridian line runs through this territory, 53 square miles lying east of that line and 145½ miles on the west side. The most southerly boundary is located two miles south, in township 9, and the most northerly, five miles north in township 13.

Sixteen quarter-sections are described as homestead sales and patents, and four as irrigation lands. Thirty-seven and one-quarter square miles are in grazing leases. Six square miles are otherwise disposed of. The cost of this survey was \$2,021.82.

Mr. W. J. Van Dusen, of the Forestry School of the University of Toronto. supported by three forestry undergraduates, made a survey of a tract of land adjacent to the Porcupine Reserve in Manitoba with the object of determining what portions should be added to the reserve. Mr. Van Dusen's report recommends the addition of 428½ square miles of land which is wooded with jackpine, and is of no agricultural value. This area is a semi-circular strip touching the Canadian Northern Railroad at twelve points, the arms reaching the boundary between Manitoba and Saskatchewan, the arm at the north extending into Saskatchewan three-fourths of a mile. The survey cost \$2,055.58.

GRAZING.

An area of $45\frac{3}{4}$ square miles, consisting of all of township 1, range 21, and part of township 1, range 22, in the Turtle Mountain reserve, was, in the summer of 1911, fenced for grazing. This is an admirable tract for such purpose, being well watered, and covered with a dense growth of long grass and pea-vine. It is not good farming land, as it consists of heavy clay, and has an elevation of about 2,500 feet above sea level.

Throughout the area young poplars have sprung up, but these have not been allowed to grow to large size on account of fires which have run over the ground every two or three years. Fires have been facilitated by the long grass, and these have not been confined to this area, but have extended and destroyed much large timber. It was thought advisable, therefore, to encourage grazing and for this purpose the fence was constructed.

The fence has a length of 19½ miles. It has four strands of heavily galvanized hard steel number 9 wire. The bottom wire is strung fifteen inches above the ground, and the wires are placed eleven inches apart with upright or stay wires 22 inches apart. At every eighty rods there is a steel post, and the fence is strongly braced at a distance of every forty rods, the braces being round oak 9½ feet long. There are 6,000 fence posts. They are of oak and willow six feet long and not less than three inches at the small end. Anchor posts are of oak, six inches at the top and eight feet long.

The total cost of constructing the fence was \$3,344.52, of which \$54.40 was paid for advertising; \$600 for wooden posts; \$40 for iron posts; \$239.28 for anchor posts

and bracing timber; and \$2,410.84 for wire and labour.

As regards grazing regulations:-

The number of stock which may be grazed upon the said tract and the period during which grazing will be permitted shall be determined each year by the Director

of Forestry.

Subject to the approval of the Director of Forestry, the forest ranger or other officer in charge of the reserve shall fix a date before which all applications for grazing permits shall be submitted, and any applications received after the date fixed shall be entitled to consideration only after the applications received prior to such date have been satisfied or disposed of. Due notice of the date fixed shall be given at least thirty days before such date by advertisement in a newspaper circulating in the district.

Applications for grazing permits must be made on the form prescribed for that purpose and must give a sufficient description for identification of the stock, including

the marks and brands when there are such.

Bona fide residents in the vicinity of the reserve will be given preference in the granting of permits.

The number of stock to be grazed and the period of grazing is to be determined

each year in advance by the Director of Forestry.

A date is fixed each year before which applications for grazing are received. Thirty days notice is advertised.

Marks and brands of stock must be given in application forms.

Dues are twenty-five cents per head per month or one dollar for the season payable in advance, only stock six months old or over being counted.

Permits are granted only for the exclusive use of the owners of stock and are not

transferable.

Any stock removed before the expiration of the permit may be replaced by other stock, to an equal number, which are owned by the permittee.

Permittees must remove their stock within seven days after the expiration of the permit.

Permittees must salt their stock regularly and must remove the carcasses of animals which die.

The Department does not hold itself responsible for damage caused by stock escaping from the enclosure.

If grazing interferes with the production of wood the Minister of the Interior

may order grazing to cease.

Permittees are required to aid in extinguishing fires in the tract within which permits are granted.

There are excellent large grazing areas in the Riding Mountain, Beaver Hills, and Rocky Mountain Forest Reserves, but unlike the Turtle Mountains, settlers in the vicinity are not numerous. Hence the necessity for fencing grazing areas on these other reserves is not very apparent. Possibly on the Porcupine Hills of Alberta this might be practicable as they are now occupied by a large number of ranchers.

Grazing on all such areas should, however, be governed by the Department in such way that each permittee would be assured of having sufficient grass for his stock. On the Porcupine Hills, some arrangement should be made whereby each permittee should have the privilege of grazing a definite area. A settler, for instance, whose property adjoins the forest reserve should have the exclusive privilege of grazing a definite area close to his home. Otherwise a rancher with a large number of cattle might herd his stock upon the tract and compel the settler to graze his stock at some distant place.

HAY.

The Cypress Hills Reserve consists of two distinct portions, the larger extending from the western side of Township 8, Range 3, west of the fourth meridian, eastwardly to the eastern side of Range 29, west of the third meridian, the average width being five miles. A smaller portion lies eleven miles distant in an easterly direction and has a length of seven miles and a width of five miles. This smaller portion should have a distinctive name. It might be called, for instance, the Maple Creek Reserve, as it lies due south of Maple Creek Station. The smaller area is quite well timbered, but the larger tract is mostly denuded, the greater proportion of it consisting of hay land.

This reserve lies in a wide stretch of country, formerly occupied for ranching, but now broken up by settlers who are trying to farm it. The region has an annual precipitation of less than ten inches, which is not sufficient for successful farming. Ordinarily it does not produce grass enough for the settlers' stock. Therefore, every summer large quantities of hay are cut on the reserve and hauled down to the farms. In 1910, many settlers who fed their stock with this hay would, without it, have been obliged to sell them at a sacrifice.

It seems to me that this hay land should be left as such. The area should not be broken up in an attempt at reforestation. The requisitions and permits for hay should, however, be managed differently. The regulations now allow requisition to be made at any time after the first day of January, and permits may be granted at any time after the first day of April, though the cutting of hay is not permitted before the twenty-fifth day of July. On April 1, there is no indication as to how much hay a given area will produce during the summer, and it would seem that the first of June would be early enough for the applications to be received, and the first of July for the permits to be granted.

REFORESTING.

To obtain seed for reforesting purposes and for the Nursery Station at Indian Head, Saskatchewan, the forest rangers collected cones as follows:

In June, jackpine on the Pines Reserve and lodgepole pine on the Cypress Hills; in July, white spruce on the Pines and Spruce Woods reserves and jackpine on the Riding Mountains; in August, spruce cones on the Spruce Woods, Riding Mountain and Duck Mountain; and in September, tamarack on the Porcupine Reserve in Manitoba and bull pine on the Monte Hills in British Columbia. The jackpine and lodgepole pine cones were those of the previous year. All others were cones of 1911.

It will be observed that cones mature earlier in the prairie provinces than in the East. In Manitoba and Saskatchewan spruce cones are collected in July. In Ontario and Quebec they are obtained in September, in some years even during the latter end of the month.

The cones were nearly all shipped to the Nursery Station at Indian Head, where the seed was extracted by Mr. Norman Ross. His report states that the freight on the cones cost \$177.33, and labour \$132.22. However, Mr. J. D. Kirkwood extracted the seed on the Spruce Woods Reserve from 60 bushels of cones collected there.

The following is a summary of the cones and seed collected during the season with the cost of the same:—

Species.	Bushels	Cost of	Cost per	Pounds	Cost per
	of Cones.	Cones.	Bushel.	of seed.	Pound,
Jackpine Lodgepole Pine. Bull Pine. White Spruce. Tamarack	186·5 100·0 38·0 193·0 24·0	\$ cts. 267 95 90 40 15 00 254 85 77 00 705 20	\$ cts. 1:437 0:904 0:394 1:31 3:21	47 28 33 177 5	\$ cts. 6 70 4 23 1 45 2 44 16 40

Average cost per bushel 91.45 cents.

The cost of seed per pound is almost as much as if it had been purchased in the market. The following prices per pound were taken from the catalogue of Thos. Meehan & Sons for 1911-12:—Jackpine, \$5.50; lodgepole pine, \$6; bull pine, \$2.25; white spruce, \$3.25; tamarack, not quoted.

In the prairie provinces, cones yield a small quantity of seed as compared with the eastern provinces and eastern states, and this is a cause of increased cost. In New York State, a bushel of green spruce cones will yield 1½ pounds of seed, while spruce collected last summer in Manitoba and Saskatchewan yielded little more than nine-tenths of a pound per bushel. It will be observed from the table above that 24 bushels of tamarack cones yielded only 5 pounds of seed.

² Average cost per lb. 6.24 cents.

The freight, too, being \$177.33 and the quantity of seed being 290 lbs., 61 cents of

the cost per pound represents freight.

Seeds of each species were sent to Mr. George H. Clarke, seed commissioner, of Ottawa, who tested them for germination. The conditions in the test were arranged somewhat similarly to those which the seeds would have in a nursery bed, but much more favourably. The seeds were placed in sand a short distance below the surface. The moisture was kept uniform. The temperature was between 20 and 30 degrees centigrade. After 16 days the germination was as follows:—

Jackpine, 48 per cent; lodgepole pine, 45 per cent, bull pine, 39 per cent; white

spruce, 33 per cent and tamarack, 31 per cent.

Last spring the ranger on the Spruce Woods Reserve made five nursery beds near Onah station as follows: Jackpine, 1; lodgepole pine, 2; bull pine, 1; European larch, 1, and Douglas fir, 1. At Shilo station he also made ten beds as follows: Lodgepole pine, 4; bull pine, 4; black spruce, 1; Douglas fir, 1. He sowed also 173 rows of bull pine with the garden seeder.

The beds are each 4 feet by 12 feet. They are boxed, covered with screens to keep out the birds and lath screens for shade. They were kept clean of weeds and were

watered during dry spells from a well dug last summer on the nursery.

The rows of bull pine are twelve feet and are spaced one foot apart. The ground

for them was well prepared. They were kept weeded, but were not watered.

On July 1, the nursery was placed under charge of Mr. J. D. Kirkwood, who took care of it for the remainder of the year. Last fall the beds of pine were in excellent condition. There had been very little loss during the summer. Some beds began to 'damp off,' but the trouble was promptly checked by Mr. Kirkwood, who sprinkled dry wood ashes over them. The spruce was also good, but the Douglas fir and European larch had not germinated. These seeds may come through this spring.

On the Cooking Lake Reserve an acre of ground was ploughed with furrows placed about four feet apart, the soil being turned to the north side. These were sown alternately with the seed of bull pine and lodgepole pine. The seed was placed close in to the sharp angle of the furrow. This seeding was quite satisfactory, the little trees standing thick along the furrows excepting in very low places, where, as the season was very wet, the trees were drowned out. This reserve is excellent ground for reforesting, and it may be possible to put evergreens upon it in this way. This, however, can be determined only by trial through three or four years.

The forester also hacked up twelve spots four feet wide by eight feet long among poplar trees. Six were sown with bull pine and six with lodgepole pine seed. The bull pine came well on high land but was poor on wet ground. The lodgepole pine was

good.

A nursery made on the Cooking Lake Reserve was rather a failure owing to the soil being acid. Ash and European larch seed germinated and grew through the sea-

son, but spruce and pine seed did not germinate.

On the Moose Mountain Reserve nursery beds were made as follows: one bed of bull pine sown in rows; two beds of lodgepole pine and one bed of spruce, sown broadcast. The bull pine and spruce sowing resulted quite well. One bed of lodgepole pine was good and the other hardly fair.

On the Riding Mountain Reserve a seed-bed did not result successfully, but some

seed sown with the garden seeder turned out quite well.

The total cost of nursery work was \$1,583.05.

SUMMER RESORTS.

During the summer of 1910, a pleasure resort was located on the shore of Arbor Island in Lake Max, Turtle Mountain Reserve, and last summer 41 lots were surveyed under the direction of the Surveyor General. A shore allowance was left 66 feet wide. Streets were also made of a width of 66 feet. Lots were as nearly as possible laid off

with a frontage towards the water of 100 feet and a depth of 150 feet. A lane was added at the rear of the lots.

Arbor Island is an excellent one as a summer resort, being densely wooded with oak, ash, birch and poplar. Eight families had, previous to the survey, erected cottages upon it. Previous to the occupancy of the island as a summer resort there was no fishing in the lake, but three years ago pike were transferred from Lake Oscar which lies a short distance from Lake Max.

On the shore of Fish Lake in the Moose Mountain Reserve a resort was laid off in three portions, on Arcola Bay, Sandy Beach and Moose Bay, respectively. The one on Arcola Bay is the largest, consisting of 65 lots. Along the shore is a road allowance of 66 feet or more, called Arcola Avenue. Parallel with this and back from it about 150 feet runs Arbor Avenue, also 66 feet wide. Still 150 feet further back runs a lane 20 feet wide parallel with the avenues. Extending from the lane to the shore are six cross streets 66 feet wide named after trees: Elm, Birch, Aspen, Ash, Maple. The lots are about 50 feet wide by 150 feet deep.

The Sandy Beach portion is laid off in 30 lots adjoining Sandy Beach Avenue, which is 66 feet wide and runs along the shore. There is just one row of lots, at the rear of which runs a lane. Five cross streets are named after various species of fish

-Jackfish, Pickerel, Pike, Minnow, Bass.

Moose Bay portion consists of 42 lots in two rows. Moose Avenue runs along the shore, Elk Avenue behind the first row of lots, and a lane behind the second row.

Three cross streets are called Beaver, Mink and Porcupine.

On the Moose Mountain Reserve are more than one hundred lakes and ponds of which Fish Lake is the largest. It has a length of about three miles and a width of about two miles. The outline is much broken and the shores are well wooded with poplar. Pike and pickerel abound in its waters. Good roads lead to it from Carlyle and Arcola. The shore has been used as a tenting ground by pleasure seekers for several years.

Respectfully submitted,

A. KNECHTEL,
Inspector of Forest Reserves.

No. 4.

REPORT OF N. M. ROSS.

DEPARTMENT OF THE INTERIOR,
FOREST NURSERY STATION,
INDIAN HEAD, SASKATCHEWAN, March 31, 1912.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa, Ont.

SIR,—I have the honour to submit herewith my twelfth annual report, dating

from March 31, 1911.

Throughout the three prairie provinces the weather conditions during the past season have been exceptionally favourable to the work of the Tree Planting Division. With the exception of a comparatively small portion in Southern Manitoba, the precipitation throughout the West was above the average. In all districts, with the exception of part of Southern Manitoba—which suffered again from drought,—the planta-

tions, especially those newly set out, have, from the inspectors' reports, done exceptionally well. The season of 1910, it will be remembered, was a very trying one, nearly all districts suffering badly from lack of rain, and, as a consequence, trees set out in that season made practically no growth and the percentage of failures was high. These plantations, however, all came along splendidly last summer; the snowfall last winter (1910-11) was extremely heavy, providing ample moisture for all spring planting, while during and immediately after the planting season frequent rains and cool weather produced ideal conditions. Although the fall was exceptionally wet, for some reason active growth did not continue too late, and there appears to have been no damage caused by freezing of immature growth. The soil throughout the West generally was well soaked with moisture at the time of freezing up. It is fortunate that this was the case as the snowfall during the winter has, as a general thing, been very scant, exposing large bare surfaces from which a great deal of moisture must have evaporated. We do not anticipate any abnormal damage from winter-killing as a consequence of the light snowfall, except perhaps in the case of half-hardy stock.

On the Nursery Station growth both in the nursery plots and in the various plantations was exceptionally good. The transplanting operations with seedling conifers

were, this year, particularly successful.

At the end of March, 1911, Mr. Arch. Mitchell, who had been connected with the Tree Planting Division for several years, first as Tree Planting Inspector and later as Assistant in the Tree Planting Division, resigned his position. Mr. Mitchell is probably more familiar with general conditions affecting tree-culture in Alberta than any other person, and, as these conditions are particularly trying and of peculiar local character, his resignation will be particularly felt in connection with our work in that province.

Mr. S. S. Sadler, a graduate of the University of Toronto Forest School, was appointed a month or so later to fill the position left vacant by Mr. Mitchell's resigna-

tion.

INSPECTION WORK.

During the summer months; inspection work was undertaken by the following members of the staff: Messrs. S. S. Sadler, A. P. Stevenson, John Caldwell, Angus Mackintosh, W. Guiton, Jas. Kay, Jas. N. B. McDonald, Wm. Macdonald, Jas. Cowie and Geo. Kennedy. The reports of these inspectors are appended herewith.

The following table gives a comparative statement, for the past three years, of the number of trees distributed and the number of applicants:—

	1910.	1911.	1912.
Number of applicants on inspectors' books. Number of applicants to receive trees. Number of trees distributed. Number of new applicants.	3,173 $2,533,600$	8,036 3,285 2,636,100 2,656	$\begin{array}{c} 7,375 \\ 3,618 \\ 2,729,135 \\ 1,649 \end{array}$

From this table it will be seen that, though the number of new applicants is decreasing, the number of settlers supplied with trees is increasing and the number of trees sent out is also slightly increasing. Settlers are becoming more familiar with the regulations governing our distribution and are realizing that their ground must be in a certain condition before trees will be granted. Therefore, a very much smaller percentage of applications is received now from those not having soil properly prepared than has been the case in past seasons. Undoubtedly, too, more applications would have been received had the conditions of the past season been more favourable for farming operations.

OFFICE WORK.

The table given below summarizes the work done in the Indian Head office of the Branch:—

	April 1, 1910 to Mar. 31, 1911.	
Number of planting plans prepared Number of pieces of mail received. Number of pieces of mail sent out. Number of new files added.	1 19,402	3,004 12,249 1 20,332 2,696

¹ This does not include bulletins, these being sent out from the office at Ottawa.

This table shows work handled in the office during the past two seasons. It will be noted that there has been a falling off in the number of pieces of mail received, and, naturally, a corresponding decrease in the number of new files added. This, we think, is not due to any lack of interest in the work but to two causes, viz.: the exceptionally unfortunate conditions affecting farm operations during the latter part of the season, and the fact that the usual advertisements and posters calling attention to the free distribution were not published until very late and the agricultural papers were not used as freely for advertising purposes as in past seasons.

The position in which a majority of western farmers are placed, owing to the late harvest and unfavourable threshing season, followed by extreme difficulties in marketing their crops, has undoubtedly had its effect in reducing the number of new applications. The average farmer has, this spring, more than the usual amount of work to overtake, and in many cases financial considerations due to the loss of crop or low-grade grain make it almost impossible to devote time or money to tree planting this season.

EXHIBITS.

As in past seasons exhibits were made at the summer fairs held at Calgary and Brandon, the inside exhibits being supplemented by small plots planted to show varieties best adapted to the local conditions and simple nursery operations suitable to farm requirements.

LECTURES.

Mr. A. P. Stevenson attended a number of Farmers' Meetings in Saskatchewan during the months of January and February, delivering lectures on the work of the Tree Planting Division and tree-culture generally. I personally attended meetings at Gull Lake, Wolseley and Winnipeg.

NURSERY WORK.

For general nursery work at this point conditions on the whole have been particularly favourable. The growth of all stock was strong and slightly above the average. Our acreage to maple was considerably smaller than usual, but, as it was absolutely impossible to obtain seed of this species, this was unavoidable. The crop of ash seedlings (two years old) is very small as compared with the acreage. The reason for this, as mentioned on page 95 of last year's report, is the very severe frosts which occurred late in the spring of 1910. These frosts destroyed at least fifty per cent of the freshly germinated seedlings.

The worst feature of the past season in relation to the nursery work was the exceptionally early freeze-up. It was impossible to work on the land after October 24,

which is about the date we have heretofore commenced sowing our fall seeds, such as ash. We find it a great advantage to sow this species in the fall, not only because it makes less work in the spring, but particularly for the reason that we get a very much better germination than from spring sowing, and usually the stock is larger and better rooted.

The following areas were devoted to the different value Broad-leaved— Maple, 1 year. Ash, 1 year. Ash, 2 years. Caragana, 1 year. Willow (cutting stock). Russian poplar (cutting stock). Ornamental stock 1.	10 acres. 20 acres. 20 acres. 2 acres. 5 acres. 2 acres. ½ acre.	$59\frac{1}{2}$	acres.
Transplanted tamarack	1 acre.		
Transplanted evergreen conifers	5 acres		
Conifer seed-beds	1½ acres	74	acres.
Total area under nursery		663	acres.
The following stock is available for distribution thi Deciduous—	s spring:—		
Maple, 1 year	559,100		
Ash, 2 years	255,675		
Caragana, 1 year	212,500		
Russian Poplar (cuttings)	195,400		
Willow (cuttings)	1,218,625		
Cottonwood (imported)	300,000		
Tamarack	24,460		
Siberian Larch	3,820		
Norway Topiai (cuttings)	3,850	2.7'	73,430
Evergreen—		,.	,
White Spruce, 5 years, transplants	25,006		
Norway Spruce, 5 years, transplants	24,870		
Colorado Spruce, 7 years, transplants	3,354		
Lodgepole Pine, 4 years, transplants	10.017		
Jackpine, 4 years, transplants	9,242		
Balsam Fir	320		2,809
Total		2,84	16,239

Some of the above stock will be required for extending our own plantations. Tree-digging was commenced September 23, and completed October 21.

¹ Shrubs being grown are for shipment to Buffalo Park, Wainwright, for ornamental planting there.

² Variety of Norway spruce (Picea excelsa septentrionalis) seed, supposed to have been collected in Northern Finland, and should therefore prove a considerably more hardy strain than the common Picea excelsa.

All Russian poplar cuttings and over 600,000 willow cuttings were made up before winter set in. These are counted and tied in small bundles and completely buried outside for winter storage. About 600,000 willow cuttings will remain to be made this spring before the packing season opens.

COLLECTION OF SEED.

The past season was a particularly good seed-year for practically all species, and every endeavour was made to procure as large stocks of seed as possible, particularly maple and ash, in case of a short seed-crop this year.

Elm.—In the month of June, 35 lbs. of this seed were secured from Winnipeg, while 40 lbs. were collected from trees growing on the Experimental Farm. We have experienced considerable difficulty in recent seasons, in getting this seed collected at a proper stage of maturity. In nearly every case seed is picked too green, and, as a consequence, poor stands in the nursery plots are the result. The great trouble in this connection is the fact that our strong winds strip most of the seed from the trees before it actually has a chance to ripen.

Caragana.—One hundred and ten pounds of this variety were collected from the shrubs on the Nursery Station. This was sown on three acres, at the rate of about 37 lbs. per acre.

Maple.—Three hundred and twenty-seven bushels of this seed were collected in the Qu'Appelle valley, in the neighbourhood of Fort Qu'Appelle.

Green Ash.—Two hundred and forty-eight bushels were collected in the Qu'Appelle valley.

Cones of the following conifers were collected on the various reserves under the direction of the forest rangers and shipped to this point, where seed was extracted during the past winter:—

The second of the Party of the Second of the			
	Number of Bushels received.	Lts. of Seed extracted.	Average per Bushel.
•	Bush.	Lbs.	Lbs.
Lodgepole Pine. Jackpine Bull Pine. White Spruce Tamarack ¹	182	38 57 33 170 10	0·39 0·31 1·22 1·33 0·60

¹ Cones in poor condition when picked, many seeds having already been lost.

CONIFERS.

Seed-Beds.—Four thousand five hundred square feet of seed-beds were sown, the varieties being Scots, jack and lodgepole pine and white spruce. Small quantities of Picea obovata, Picea excelsa borealis, Abies siberica, Juniperus communis and Tyrolese larch were also sown for experimental purposes.

Seed-beds sown in 1910 all show particularly good stands of strong, vigorous seedlings. The majority of these will be transplanted this spring (1912).

Transplants.—Last spring was very much more favourable for transplanting than that of 1910. As a consequence the percentage of failures was very low.

The following are the varieties and numbers of seedlings transplanted, practically all two-year stock:—

3 GEORGE V., A. 1913 5.380 Scotch pine..... 96,790 Lodgepole pine (P. Murrayana)..... 66,240 Jackpine (P. Banksiana)...... 9,510 Bull pine (P. ponderosa)....... White spruce..... 18.760 1,700 Abies concolor...... 245 Flexilis pine..... Siberian larch..... 555 4.280 Norway spruce (Russian seed)...... 203,460

PERMANENT PLANTATIONS.

The trees in the permanent plantations are making excellent growth. These plantations were started in 1904 and have been added to each season. At present these plantations occupy 78½ acres. The separate plantations vary in size from one-half acre to over four acres. Twenty-three species and varieties are represented in these plantations.

Measurements were again made in these plantations in November, 1911, of the varieties planted in 1906. Of the varieties planted in 1906 it is interesting to note the relative growths made to date under similar conditions of soil and cultivation. The measurements are averages of from 100 to 150 individual specimens in each case.

The average and maximum measurements are given below:-

GROWTH OF PLANTATION SET OUT IN 1906.

Species.	Size when planted.	Ave Hei Nov.,	ght,	Maxi Hei Nov.,	ght,
Scots Pine. White Spruce Cottonwood. Manitoba Maple	15-in, forest seedlings. 10-in, 4-yr, transplant 10-in, 5-yr, transplant 18-in, seedlings.	Ft. 12 5 3 18 13	In. 11 11 0 2 9	Ft. 16 9 6 22 18	In. 0 10 8 6 2
American Elm.	18-in. 2-yr. " 12-in. 2-yr. " 15-in. 2-yr. " 24-in. 1-yr. rooted cuttings	12 8 8 18	$\frac{4}{3\frac{3}{4}}$ $\frac{2}{10}$	16 11 10 22	0 6 6

Last spring the following plantations were set out:-

4 acres Colorado spruce equally mixed with caragana.

2 acres red or Norway pine equally mixed with caragana.

1 acre jackpine equally mixed with Manitoba maple.

The spacing throughout was 4 feet by 3 feet 6 inches.

If time permits, plantations of Siberian larch and Norway poplar will be set out this spring.

It is very generally supposed that the transplanting of evergreens is more difficult than that of deciduous varieties, and that there is usually a much greater percentage of loss. In this connection the figures given in the table below may be of

interest. Actual count was made in November, 1911, of every individual tree planted in 1910 and 1911, with the following result:-

		Total Number planted.	Number dead in Nov., 1911.
Trees planted, 1910:	Caragana Scots Pine. Manitoba Maple. Scots Pine. Caragana	3,960 4,050 2,340 2,430 5,012	758 455 390 224 717
Trees planted, 1911:	Norway Spruce. Colorado Spruce. Manitoba Maple. Colorado Spruce. Caragana Jackpine. Maple.	5,272 2,300 2,300 3,629 3,629 1,250 1,256	131 0 35 0 28 232 7

In the last plantation (jackpine and maple) the comparatively large number of deaths was due to the effects of alkali in the soil. It would appear from experience covering the past eight years that the very slightest trace of alkali in the soil is fatal to all the pines (Scots, jack and lodgepole). The spruces on the same soil do not seem to be affected, though it is not suggested that they would be suitable for what is usually known as alkali soil. Even the smallest trace of alkali-so slight in fact as to be quite unnoticeable from its effects on grain crops, or other trees-will immediately cause the needles of the pines to become yellow; the growth is stunted and sickly and the tree rarely survives more than a few seasons.

VARIETY PLOTS.

The following were added to the variety plots last season:-

Manitoba maple (Acer negundo).

Soft maple (Acer saccharinum).

Green ash (Fraxinus pennsylvanica var. lanceolata).

American elm (Ulmus americana).

Aspen poplar (Populus tremuloides).

Balsam poplar (Populus balsamifera).

Lombardy poplar (Populus nigra var. pyramidalis).

Norway poplar.

Carolina poplar (Populus deltoides var.)

Cottonwood (Populus deltoides).

Russian poplar (Populus certinensis).

Russian poplar (Populus Petrofski).

Golden willow.

Acute-leaf willow (Salix daphnoides).

Diamond willow.

French laurel-leaf willow (Salix pentandra).

Purple willow (Salix purpurea).

Britzensis willow (Salix alba britzensis).

White willow (Salix alba).

Russian laurel willow.

Austrian pine (Pinus laricio austriaca).

Japanese larch (Larix leptolepis).

These plots contain 100 specimens of each variety planted four feet apart each way.

ORNAMENTAL GROUNDS AND SHRUBBERY.

Owing to the unusual precipitation, the lawns and flower-borders presented a splendid appearance throughout the season. There was a particularly fine show of bloom on the early flowerisg shrubs, such as lilac, Tartarian honeysuckle, spirea arguta, etc.

PLOUGHING AND FARM WORK.

Work last season was commenced on the southwest quarter of the section, this quarter having been turned over to the nursery in the fall of 1910. That fall a good woven-wire fence on cedar posts was erected and part of the ground, largely covered with a growth of wolf willow, cleaned for breaking. In 1911, sixty acres of this land was broken and backset. Part of this will be seeded to oats during the coming summer and the remainder will be summer-fallowed in order to put it in condition for sowing tree seeds in the fall.

The usual amount of summer-fallow and ploughing was done. Twenty to twentyfive tons of rye grass hay was cut and cured; twenty-two acres was grown to oats, which yielded over 2,000 bushels of grain.

DISTRIBUTION OF CONIFERS.

As stated in my last report it was decided to commence a limited distribution of evergreen conifers, which may be obtained for farm planting at the rate of \$1 per 100. Information in regard to this distribution was prepared in the form of a circular, which was sent out as widely as possible. The circular is as follows:-

'DEPARTMENT OF THE INTERIOR, FORESTRY BRANCH.

'It has been decided to distribute, from the Forest Nursery Station, evergreen conifers in limited quantities for planting by farmers in Manitoba, Saskatchewan and Alberta. These conifers will be furnished under the following conditions:-

'1. The applicant must be a bona fide owner of a farm in one of the three provinces mentioned above.

2. The trees if supplied must be planted on such farm property, and on no account may all or any part of the trees be used for planting on town or village lots, or within the limits

of any city, town or village.

'3. The applicant, before any trees are granted, will be required to sign an affidavit that the trees are for planting on his own farm property and will not at any time in the future be removed from the farm for planting elsewhere, nor offered for sale for planting within

town or village limits.

'4. The stock offered will be limited in quantity and applications will be booked in the order in which they are received; all applications must be made upon the forms supplied by the Forestry Branch, which may be obtained by writing to the Forest Nursery Station at Indian Head, Sask. The application must be accompanied by a post office or express money

order sufficient to cover the number of trees applied for.

'5. The young trees will be supplied at a cost of \$1 (one dollar) per hundred, f.o.b., Indian Head. The trees will be packed and delivered at the station for shipment to applicant's express office, the express charges to be paid by applicant upon delivery.

'6. No application will be entertained for less than 100 of any variety; that is, orders will not be filled for, say 50 spruce and 50 pine; but if both spruce and pine should be desired, at least 100 of each must be ordered. No order will be filled for more than a total of 500 trees in one season.
'7. The department does not assume any responsibility regarding the delivery or sub-

'A. The department does not assume any responsibility regarding the delivery or subsequent growth of the young trees. Every effort will be made to supply first-class stock true to name, and every care will be taken to have the trees well packed and delivered to the express company at Indian Head in good condition for shipping.

'S. All stock is grown from seed at Indian Head; the trees will be from four to six years old, at least once transplanted, and will be of a suitable size for permanent planting. The average height will be twelve inches, though some may possibly run under this and others over.

READ THE FOLLOWING CAREFULLY.

'Before sending a request for an application form with a view to placing a definite order for evergreens, the applicant should be reasonably sure that his conditions are favourable to growing the trees successfully.

'The ground must be in the best possible state of cultivation, preferably summer fallow. 'Evergreens should be planted as soon as possible after they are dug; they will not stand the same, amount of neglect as will the ordinary deciduous varieties. If the applicant lives at a considerable distance from an express office, so that he cannot be promptly notified as to the arrival of the trees, there would be every likelihood of the trees either drying out or becoming heated before delivery could be made, and consequently the purchase price would be so much wasted. This would apply in localities where mail is delivered only once a week, or perhaps only once in two weeks. It is not practicable when shipping to send out notices of intended shipment more than three or four days in advance of the actual shipping date, as the time of shipping depends altogether upon the local weather conditions over which we can have no control. can have no control.

can have no control.

'Evergreens of the right varieties, though perfectly hardy when once thoroughly established, seem to require some protection for at least two or three years after planting. In most cases it would be a waste of time and money to plant on the open prairie.

'The most favourable situation for planting would be in the vicinity of a well established shelter belt of the ordinary native trees, where the young evergreens may be protected during the winter and early spring by the covering of snow held by the older belt. The trees should not, however, be planted within several feet of the established belt, as during the first few years the growth is small and young evergreens are very sensitive to over-crowding or too close shading by larger trees. close shading by larger trees.

'Evergreens to be most successful should be planted close together, not more than three

and a half or four feet apart. Isolated specimens set out singly in the centre of a lawn, or in some other equally exposed situation, are placed under most unfavourable conditions for healthy growth, and unless given special protection during the first few winters will usually

fail to survive. 'For further particulars regarding the varieties available for distribution in 1912, and for regular application blanks, apply to:

> THE FOREST NURSERY STATION, INDIAN HEAD, SASK.

'IMPORTANT-No money should be sent to pay for evergreens unless accompanied by application made out on official form. These forms will be supplied upon request. Any money received without an order on the official blank will be returned.'

The demand for these evergreens has been so great that our total stock was very quickly applied for, without any advertising on the part of the department. Many applications latterly had to be refused owing to the supply of stock being exhausted.

Respectfully submitted,

NORMAN M. ROSS. Chief, Tree Planting Division.

No. 5.

REPORT OF S. S. SADLER.

DEPARTMENT OF THE INTERIOR. FORESTRY BRANCH. NURSERY STATION, INDIAN HEAD, SASKATCHEWAN, March 31, 1912.

R. H. CAMPBELL, Esq., Director of Forestry, Ottawa, Ont.

SIR,-I have the honour to submit herewith my first annual report, which is a summary of my work as Assistant in the Tree Planting Division of the Forestry Branch.

I reported to Norman M. Ross, Chief of the Tree Planting Division, on the 9th of May and proceeded to take over the work of my predecessor, Mr. Archibald Mitchell.

The last shipment of trees was forwarded from Indian Head on May 8; therefore, the work of compiling the packing and shipping lists was completed upon my

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arrival. From the 9th until the 26th of May was spent checking the shipping lists to obtain correct data for the number of trees, considered by species, shipped to the various express offices and the proportionate number shipped into the three provinces. On the 26th of May I went to Calgary, accompanied by one of the inspectors, Mr. Cowie, to put in order the demonstration plots at Victoria Park for the Calgary Provincial Fair. In 1910 the Board of Directors of the Fair placed at the disposal of the Tree Planting Division approximately one acre of ground directly inside the main entrance and constructed around it a substantial panel fence. In the spring of 1910 Mr. Ross drew up a planting plan for the above plot and also a plan for an ornamental border on each side of the main entrance to the industrial building. supervised the planting of these areas in the spring of 1910 and the material used was grown at the Nursery Station, Indian Head. The plot in the enclosure contains plantations of the various species recommended by the Forestry Branch as suitable to western Alberta. There are also coniferous and deciduous seed-beds and coniferous transplant beds, to demonstrate the manner in which trees are propagated. As the demand for planting material is increasing so much more rapidly than the facilities for producing the supply, I believe the propagation by seed of the broad-leaved trees suitable for plantation in the prairie provinces should be emphasized. as far as possible, and encouragement given to farmers to raise their own stock. There are places in nearly every district where the seed of maple and ash could be secured at little expense, and, where not locally available this seed could be purchased from commercial dealers. With a few pounds of seed and several square rods in the home garden, a sufficient number of trees could be grown to extend the shelter belts already established under the direction of the Forestry Branch.

On account of the very dry season in 1910 there were numerous failures in the plantations at Victoria Park, especially amongst the conifers. After I had replaced all the dead trees and sown the seed of the coniferous and broad-leaved species, I returned to Indian Head. A few days were spent in June with several of the inspectors gathering elm seed on the Experimental Farm. On the 21st of June I met Mr. Stevenson at Sanford, Manitoba. From here I accompanied him for four days visiting the people in that district who have received trees from the Forestry Branch and those who had applied for trees. Several older plantations were visited which had made a remarkable growth and are an evidence of what may be expected of tree-planting in Manitoba. On the 27th June I returned to Calgary to take charge of the Forestry Exhibit during the Provincial Fair. Beside the demonstration plots there was a collection of enlarged photographs showing what has been accomplished in the way of treeplanting at Indian Head and in the various localities throughout the provinces of Manitoba, Saskatchewan and Alberta. There was considerable interest taken in the photographs, but more especially so in the demonstration plantations and the ornamental planting around the Industrial Building. All during the Fair a number of the shrubs and perennials were in bloom, which added a great deal to the attractiveness of the grounds. As the trees in the plantations become larger they will increase in value as examples of shelter belts and also form a very pretty group of trees in the Fair Grounds. I had an opportunity of visiting the Fair Grounds while passing through Calgary later in the summer and found but few failures in any of the plots. There was a very satisfactory stand of maple and ash seedlings, and not more than five per cent loss in the coniferous transplants. After the closing of the Fair I met one of the new inspectors, Mr. Cowie, at Lethbridge, and spent a week with him inspecting the plantations in that locality. Although this is considered a dry section of Alberta, there have been very satisfactory results obtained from tree-planting. Many of the recipients are in a position to irrigate, which is a great protection against drought.

During the latter part of July, I attended the Brandon Fair and had charge of the Forestry Exhibit in the Agriculture Building. The exhibit at Brandon was somewhat similar to the one in Calgary, excepting the collection of native woods from Manitoba.

These consisted of sections about three feet long taken from the log and having a portion of the face polished to demonstrate the different grains and textures of the various species. The demonstration plots around the building were not laid off in regular blocks as at Calgary, but consisted of irregular groups separated by driveways. A small area directly at the back of the building contained a small nursery of coniferous and hardwood seed and transplant beds. There were several thousand people who visited the exhibit and a great many of them had questions to ask regarding the growing of trees on the prairie. From interest shown, it is certain that a considerable amount of information regarding tree-culture was carried away by the visitors and no doubt it has stimulated an increased desire to establish shelter-belts around the prairie homes. On the 1st of August I met Mr. MacDonald at Moosejaw, and spent several days with him along the Soo Line. A very luxuriant growth of all varieties of trees supplied by the Forestry Branch was the most noticeable feature in this district. This growth was due to the very heavy soil, high in nitrogenous matter, and to the abundance of moisture present. I made growth measurements on several plantations and found a maximum current growth for maple to be over five feet. On account of the heavy clay soil cultivation was more difficult in this district and where it had been neglected there was a heavy growth of weeds and grass which stunted the growth of the trees and gave them an unhealthy appearance. In a very heavy soil cultivation is of paramount importance; during dry seasons the top soil bakes and cracks, increasing evaporation from the subsoil; while in very wet seasons the top soil is saturated, giving little opportunity for the proper circulation of air around the roots of the trees.

On the 7th of August I met Mr. Kennedy at North Battleford and spent several days north of the Canadian Northern Railway and several days south, in the vicinity of the Eagle Hills. In both of these localities the soil and climatic conditions seem to be very favourable to tree growth. The soil is a rich sandy loam and there was little evidence of damage from winter-killing. Both the cottonwood and the Russian poplar seem to do exceptionally well in this part of the province. The remaining part of August was spent in Northern Alberta, along the Lacombe Branch of the Canadian Pacific railway, with J. N. B. MacDonald. This being a comparatively new country, the majority of the plantations are quite young, although all varieties supplied by the department seem to be making as good a growth as those farther east-The principal feature was that a great many of the settlers are not ready for treeplanting. The buildings are only temporary, and, in the majority of cases, those who had applied for trees have not had sufficient time to properly prepare the soil. As the farms become better established there will be more time available to properly cultivate the ground and care for the young trees which are to form the shelter-belts in the future. Railway facilities are not developed as they are farther east, which makes inspection work more difficult, necessitating long drives by livery to reach the recipients.

From northern Alberta I returned to Indian Head to check over the forms received at the office, which had been sent out by the inspectors where it was inconvenient to visit the applicants personally, and to answer inquiries regarding the arrangement of

plantations and the distribution of planting material.

On September 1, I met Mr. Mackintosh at Watrous, Sask., and spent several days on inspection with him in the country south of the Grand Trunk Pacific. From Watrous I went to Dauphin, Manitoba, where I met Mr. Kay and spent several days in that locality. The largest annual growth I saw during the summer existed around Dauphin. In several cases the maple had made a growth of six feet, and cottonwood over seven feet, during the season of 1910. The soil is a black loam and generally contains a sufficient amount of moisture to produce a vigorous growth. The occurrence of bluffs and natural tree growth is very noticeable through this part of Manitoba, and there is not the need of planted shelter-belts, as in the treeless areas farther west.

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The first two weeks in October were spent in Alberta completing the inspection district assigned to Mr. Cowie, who returned to the Nursery Station the last of September to assist with the lifting and bunching of seedlings. I worked from Calgary north on the Edmonton branch of the Canadian Pacific Railway as far as Carstairs, visiting fifty-six applicants. The district along the foothills of the Rockies from Macleod to Olds has been found to be less favourable to tree growth than any part of the prairie provinces. All the varieties supplied by the department have been planted in this part of Alberta, and all, with the exception of the caragana, have been winter-killed. By the above I do not intend to convey the impression that such species as the willow, Russian poplar, or even the Manitoba maple cannot be grown along the foothills; but, if planted on a rich soil and a southern aspect, there is danger of a setback by early and late frosts. Several peculiar incidents relative to tree growth were seen in the vicinity of Airdrie, Alta. A plantation four miles southwest of the town, consisting of maple, Russian poplar, elm and willow, was damaged more or less by late frosts in the spring of 1911, while another plantation twelve miles east, consisting of the same species, and planted on similar soil, showed no effect of winter-killing. The first plantation lay on a southern aspect, while the latter lay on a northeastern aspect. Whether or not this degree of hardiness can be accounted for by the change of aspect alone is not certain with the amount of data at hand. After completing the inspection work in Alberta I returned to Indian Head and since then I have been occupied with the general office-work relative to the shipping, packing and inspection lists for 1912.

My work during the summer has given me the opportunity of seeing the different conditions which influence tree growth in the various districts and to make comparisons of the results obtained under these conditions. The method of inspecting is somewhat different with each inspector, and by accompanying them for a few days comparisons can be made as to the most efficient and practical system. Some of the districts are entirely too large for the amount of time available and it is essential that the inspectors cover their territory in the quickest time possible without omitting any necessary data and giving each applicant all the assistance desired in the way of sug-

gestions and advice regarding tree-planting.

Taking the three provinces as a whole, and including all the plantations from those first established to the ones more recently set out, it is certain that the results obtained have been exceedingly satisfactory. In all except the newer districts there are thrifty plantations which are a stimulus to the community and will do a great deal towards the advancement of tree planting on the prairies.

Your obedient servant.

S. S. SADLER, Assistant in Tree Planting Division.

No. 6.

REPORT OF A. P. STEVENSON.

DUNSTON, MANITOBA, December 21, 1912.

R. H. CAMPBELL, Esq., Director of Forestry, Ottawa, Ont.

SIR,—I have the honour to submit herewith my eleventh annual report on the work done by me as inspector of tree plantations in the Tree Planting Division of the Forestry Branch.

The district assigned to me this year was that traversed by the main line of the Canadian Pacific Railway from Brandon to Winnipeg and eastward to the eastern boundary of the Province of Manitoba, embracing all of Manitoba lying between that line south to the International boundary, together with the territory served by the Oak Point branch of the Canadian Northern Railway and the Stonewall, Arborg and Winnipeg Beach branches of the Canadian Pacific Railway.

The total number of applicants on my list was 704. Of that number 471 had received trees previously, and 106 are again receiving trees. There are 233 new men, of whom 156 will receive trees in the spring of 1912, making a total of 255 men who

will receive trees to the amount of 165,800.

In nearly all cases where new applicants were not granted trees in the spring of 1912 the reason was due entirely to the lack of proper preparation of the soil for trees; in a few other cases where the necessary preparation had been unsuitable on account of being made too close to the farm buildings, trees were not granted. It is a great mistake to allow trees for a shelter-belt to be planted too close to buildings. Sixty yards distance from building wherever possible should be insisted on, even if the planter should think it a hardship to put off planting for another year. Afterwards he will always be glad this was insisted on by the inspector.

The plantations set out in the spring of 1911 in the southeastern, south central and central portions of Manitoba have done remarkably well. Fully 85 per cent of maple and ash, 80 per cent of Russian willow and poplar and 45 per cent of the

cottonwood are growing and in a thrifty condition.

The growth of the trees set out in 1910 in the district mentioned was above the average of other years. Some of the growths on the maple measured three and one-half feet and over, ash three feet, willow three and one-half feet, cottonwood four feet. In fact the growth was surprising when it is considered that last year an extended drought prevailed through the larger portion of the district mentioned, the young trees

planted in 1910 barely holding their own.

The spring of 1911 was one of the most favourable for tree planting in Manitoba. During the entire summer abundance of rain fell, the precipitation being above the average, except in some parts of southwestern Manitoba. In some part of that district the drought this year was very severe, this being the second year of the dry period. It extended about fifty miles along the International boundary taking a strip twelve to fifteen miles wide in Manitoba. The young plantations in this dry strip were looking fairly well, notwithstanding the extremely dry weather, and, while the growth was small, it was remarkable to note the number that still had life and apparently are ready for business as soon as the necessary rains come.

The wisdom of the rule insisted on by the Forestry Branch, that the land must be properly prepared before trees are planted, has been abundantly proved throughout this

district during the past two seasons.

No injury from late or early frosts was noticed in my district during the season, and as there was an average amount of snow during the past winter little or no injury from winter-killing was noticed.

In the Souris district some injury was done to the maples by the tent caterpillar, and I regret to say little or no effort was being made to overcome the pest.

Very little damage was done this year by the vagabond gall, and that only in the southwestern, or dry, district.

I am pleased to report that the general care and condition of the young plantations are fully up to the average of other years. A better knowledge of the requirements of the tree-planting scheme before trees are given is now abroad among the farmers wanting trees, and the impression is gradually gaining with intending planters that if large trees are desired they will require to plant little ones.

The Russian willow is growing in popularity with the farmers. This is not surprising when we consider how easily it is propagated, its quick-growing qualities.

hardiness, freedom from disease and the fact that these trees are among the first things green in spring and remain green late into fall, when everything else is brown and bare. These points appeal strongly to the farmer on the bleak, open prairie. The ash, also, is a tree much desired by the farmers when once it gets established, but to secure the best results it should always be planted with maple, never with willow, cottonwood or Russian poplar.

Old plantations are showing up more prominently as the years pass and it is always a source of satisfaction to visit, examine their growth and note their general condition, and incidentally learn some lesson therefrom, and also to hear the appreciative remarks on their benefits by the owners. One of these, and by no means the least, is the large number of singing birds of various kinds that are now noticed around their prairie farm homes that were never seen there before they grew their young plantations.

Respectfully submitted,

A. P. STEVENSON. Inspector of Tree Plantations.

No. 7.

REPORT OF ANGUS MACKINTOSH.

GRAVESEND, DYSART, SASKATCHEWAN, December 1, 1911.

R. H. CAMPBELL, Esq., Superintendent of Forestry. Ottawa.

SIR, -- I have the honour to send you herewith my report upon the tree-planting inspection work intrusted to me for the summer and autumn season of 1911.

The territory allotted to me was that lying between the Manitoba boundary on the east and Saskatoon on the west; and from the Qu'Appelle Valley on the south to the Yorkton district on the north. The Kirkella branch of the Canadian Pacific Railway, the main line of the Grand Trunk Pacific Railway, and the Yorkton division of the Canadian Pacific Railway run through that tract of country.

The names on my list numbered 722. I visited 666 of that number, and sent circulars for the requisite information to the remainder of them. As some of the circulars sent out had not been returned at the end of the season, when I handed in my books at Indian Head, I cannot give the exact number of the people on my list to whom trees will be supplied next spring, but it will be between 160 and 170. There were sixteen on my list that were not eligible for trees, as they lived in bluffy places where nature had provided shelter.

I visited Indian Head on the 1st of June and next day began work at Manson,

and I finished on the 29th of October at Churchbridge near Yorkton.

As there are now plantations of from one to six years of age dotted all over this part of Saskatchewan, and the climatic conditions all over are very much alike, a few general remarks on the present condition of the trees will suffice.

Last season I had to record many failures from drought amongst the newly planted trees, mainly in the western part of my territory; this season, I am glad to say, I have a better account to give. The early part of the season, just after the young trees were planted, was showery, and it continued throughout more moist than northwestern seasons usually are. Consequently it was an excellent season for tree planting

and tree growth. In my eight years inspection work I have not seen so few failures amongst the newly planted trees. In some plantations containing from 700 to 1,000 I could hardly find a dead tree, and where there were any they amounted only to two, three, or at most five per cent. There were, and I presume always will be, a few exceptions, clearly traceable to dilatoriness in removing the trees from the railway stations and careless planting. The failures, chiefly amongst the cottonwood and Russian willows, all over will not exceed four per cent.

The trees planted last year, after the blank places had been filled up, look well and

have this year made good headway.

As to the older plantations I may say that many of them are now affording shelter to buildings and gardens and have covered the nakedness of many bare homes. In some of those plantations the cottonwoods are from twelve to sixteen feet in height, willows from ten to twelve, maple eight to ten, and ash from six to eight feet. It is a pity, however, that the owners of some of those plantations stop stirring the ground and keeping down the weeds too soon, and allow bad grasses to get established amongst the trees, before there is sufficient cover or shade to check them. When couch grass has spread under the trees before the branches meet, stuntedness and decline invariably follow. I estimate the failures all over, amongst the older plantations, at ten per cent. The greatest death rate is amongst the cottonwoods, and the least amongst the ash.

It is gratifying to find that some of the people that had trees from the Forestry Branch for two or three years are now growing trees from seed and cuttings themselves, and in that way extending their plantations. They should be encouraged in doing this, and I always give them advice as to the best way of thus helping themselves.

In several places that I visited the maples and cottonwoods, of one and two years' growth, had been cut back by the fall frosts, that came upon them before the shoots had ripened, and the winter storms. This, however, is a common occurrence, that retards the growth of the trees, but does not do them any lasting injury. I do not often find trees hurt in that way after the third year.

As I mentioned in my last report, about half of the conifers distributed in 1910 failed, but I am glad to say that the survivors have this year made a very satisfactory growth. The tamarack in this respect stands first, the Scots pine second and the various spruces third. I attribute the failure of last year to lack of care, and lack of

knowledge on the part of the planters.

The present offer of the Forestry Branch to supply bona fide farmers with conifers at \$1 per hundred has taken well, and there will doubtless be many applicants. None, however, of the farmers that I have spoken to on this subject desired as yet to form plantations of conifers, but the wish seems to be to have some evergreens on which the eye, looking from the house or its vicinity, can rest when other trees are bare and leafless. I have been often asked by intending purchasers where they should plant those trees, and my advice has been to plant them in a row—spruce and pine alternately—inside their shelter-belts; and also to dot single specimens or small clumps about their lawns, if the lawns are sheltered and not too small.

That American and European larch and several varieties of spruce and pine will do well on the prairies of the Northwest is no longer questionable. The flourishing plantations at the Forest Nursery Station, Indian Head, have already proved that.

Respectfully submitted,

ANGUS MACKINTOSH,
Inspector of Tree Plantations.

No. 8.

REPORT OF WALTER B. GUITON.

DEPARTMENT OF THE INTERIOR,

FOREST NURSERY STATION,

INDIAN HEAD, SASKATCHEWAN, January 18, 1912.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa, Ont.

Sir,—I have the honour to submit to you my fifth annual report on tree-planting inspection work as carried on through the co-operation of the Forestry Branch, Department of the Interior.

Since sending in my last report I was employed during the winter in the general routine of office-work until the 28th of March, when I went to the Nursery Station to assist with the planting and general distribution of trees until the 15th of May, when I went to Brandon to finish planting the exhibition plot at the Forestry Building. I then returned to the Forestry Office to arrange my books to commence inspection work on June 1.

The district assigned to me was the main line of the Canadian Pacific Railway from Fleming on the eastern border of Saskatchewan, to Maple Creek on the west. Total number of square miles over which applicants were scattered was 31.320.

On June 1, I commenced my tour of inspection at Fleming. This district, as far west as Indian Head, is more or less dotted with small bluffs of the native poplar. These trees, however, do not always afford protection where the farmer intends building, and it has been found necessary to apply to the Forestry Branch for assistance. In 1901, when the tree-planting scheme was first advocated, this district among others realized the benefits of a well established belt of trees. Object lessons could already be seen from the plantations on the Experimental Farm.

In the district between Indian Head and Moosejaw, both the older and more recent plantations are examples of successful tree planting and are now a feature of the landscape. The above is an evidence that the species recommended by the Forestry Branch are quite suited to meet the soil and climatic conditions existing on the prairie.

The remainder of my district (between Swift Current and Maple Creek) is sparsely settled and only within the last three years have trees been supplied to those settlements which are remote from the railroads. Here and there along the railway, older plantations may be seen which are affording very beneficial barriers against the cold winds common to a prairie country.

The following summary gives briefly the details as to applicants for trees in my district:—

Total number of applicants on list	1,191
Applicants receiving trees one or more years	577
New applicants receiving no trees	258
Both old and new applicants receiving trees in 1912	505
Applicants receiving trees one or more years to receive trees.	145
New applicants receiving trees	356
Total number of trees allotted, 383.800; average per man, 760.	

The reasons why more of the new applicants did not receive trees might be classed under the following headings:—

- (a) Lack of sufficient preparation;(b) Distance from railway facilities;
- (c) Moving of buildings, and land prepared too close to buildings.

The plantations which were planted this year were a decided success in nearly every case, and few places were inspected where trees had been planted in a slovenly manner. The cuttings of the Russian poplar and willow made a splendid growth this season and many cases were seen where this year's cuttings grew three feet. The failure among these cuttings did not exceed four per cent, as the instructions were more fully carried out on the part of the applicant during the process of planting.

Plantations in 1910 were in both Saskatchewan and Alberta. The trees which were planted in Saskatchewan were one continuous example of successful planting when the instructions had been carried out with regard to the cultivation of the soil between the rows of trees during the summer, thus keeping the surface soil in a loose friable condition, with the evaporation from the soil at a minimum. Trees which were planted on well worked summer-fallow were a pronounced success, and were able to withstand the dry period which was so detrimental to all grain crops last year. The willow cuttings, which in some cases were planted shallow, met with a consequent poor result.

The trees planted in Alberta last year did well in the district which I inspected. At Lethbridge plantations are grown under two systems, namely, cultivation and irrigation, both of which have been found successful. The trees which are grown under the irrigation system are watered soon after planting and continued until the second week in July. The water is then turned off to allow the trees to ripen up before the early frost. The ground is again flooded the last thing in the fall, so that it may freeze solid and lessen evaporation during the winter. The plantations which were planted in 1909 are now eight to ten feet high according to the species used and care which they had received since planting.

This season was a most uncommon one in the history of the west. During the winter we had a very heavy fall of snow and this did not disappear until late in the spring, which seriously hampered all work, especially the spring work of the farm.

The trees were all planted, and were taken from the station in nearly all cases within a week after notice was sent out to the applicants informing them of their shipment. I did not see a case where trees were seriously damaged either from early or late frosts. There were districts which were seriously affected with drought, but, as we are only commencing to supply this district with trees, better results are looked for in the future.

The information forms which are sent to applicants remote from the railways were in most cases correct, but a visit from the inspector is more satisfactory. It is necessary in many cases to explain the actual preparation of the soil, also the best methods of planting, as ploughing a furrow or planting with a spade. These are the methods used by most of the settlers who were visited this summer, many of whom were visited for the first time on account of the distance—100 miles or more from the railways.

In closing my report for this season's work, I would say that too much effort cannot be made to counteract the tendency of some applicants in wanting to plant too close to the buildings. Plenty of room should be allowed for in case they wish to extend their buildings at some future date. The location of many of the buildings does not always allow the forming of a snow-trap in relation to the shelter-belts which are usually planted on the north and west sides of the buildings to counteract the prevailing winds. The older trees which were inspected this season were found to have

made a sufficient shade to prevent such a vigorous growth of weeds which are such a menace to the younger plantations.

The conifers which were distributed last year are doing well where the instructions were followed regarding the shading of the plants until they recovered from the strain of transportation and replanting. But the chief cause of failure seems to have been in the handling of the trees before planting, by allowing the roots to be exposed to the sun and wind.

It does not seem necessary here to enlarge further upon the benefits of tree planting. Everyone living on the prairie realizes the advantage of well established shelterbelts, not the least of which is the increased value of the property—an asset to the vicinity. Therefore it should not be necessary to seek further methods to encourage a farmer in taking up a work which he knows himself to be of value.

Respectfully submitted,

WALTER B. GUITON,
Inspector of Tree Plantations.

No. 9.

REPORT OF JAMES KAY.

DEPARTMENT OF THE INTERIOR,
FOREST NURSERY STATION,
INDIAN HEAD, SASKATCHEWAN, JANUARY 18, 1912.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa, Ont.

SIR,—I have the honour to submit my fourth annual report on the plantations set out under the direction of the Tree Planting Division of the Forestry Branch.

The districts covered by me were traversed by the following railway lines:—

Saskatchewan.—The Pheasant Hills branch of the Canadian Pacific Railway from Asquith to Macklin, and from Macklin to Bounty on the Kerr Robert and Macklin branch line; Grand Trunk Pacific Railway, Saskatoon to Artland; Goose Lake branch Canadian Northern Railway from Vanscoy to Fiske; Prince Albert branch Canadian Pacific Railway from Hague to Tisdale.

Manitoba.—Main line Canadian Pacific Railway from Kemnay to Kirkella, and all the lines north of this in Manitoba.

The number of men on my list in 1911 was 1,104; of this number 566 had received trees previously. The new applicants numbered 538. The total number of men receiving trees in 1912 is 591. Of these, 260 already had been supplied with trees one or more years and the remaining 311 were new men. The number of trees allotted to these men for the spring of 1912 is 407,100, an average of 688 trees per applicant. Two hundred and seven new men did not receive trees; the chief reasons for this may be stated as follows: (1) The land was not in a proper state of cultivation to plant trees therein; (2) the proposed plantation was too near buildings. A few were removing to another building site through lack of water and a few had sold out, rented their farms, or for other reasons did not desire delivery of their trees.

The plantations set out in 1911 almost without exception have done remarkably well, a very small percentage of the plants having failed to root and start into growth. About 97 per cent of the 1911 planting were alive. This favourable result was no

doubt due to the large amount of moisture in the soil owing to heavy rains in the fall of 1910, combined with the large amount of snow which fell during the winter and early spring months, added to ample moisture which was precipitated during planting time. The summer was unusually cold and wet, but there was no check to growth throughout the entire growing season.

The 1910 plantations were not so fortunate in certain districts. Many of them suffered severely from drought which reduced the vitality of the plants. In some instances with the fall rain there was much late growth, thereby many were damaged with frost and a good many killed out; consequently many of the 1911 plants that were meant for extensions had to be used for filling up blanks. Willows and cottonwoods suffered most, owing in part to bad planting. Drought was the main disturbing factor, however.

The plantations previous to 1910 were few in my district in Saskatchewan. I can safely say that all are in good condition, some of them, indeed, splendid, and demontrate in a thoroughly practical manner what can be done on the prairie in beautifying the home surroundings, in addition to giving substantial shelter from the cutting winds in winter. In Manitoba, where the majority of the older plantations are, they have in most cases done well; and where ordinary care has been given, there is nothing left to be desired. Indeed, too much credit cannot be accorded some men who have persevered in the face of many setbacks. Some of them have been repeatedly hailed, but in spite of this they have fine plantations to-day.

On the Goose Lake branch of the Canadian Northern Railway, and the Canadian Pacific and Grand Trunk Pacific railways west of Saskatoon, the 1910 trees suffered severely during the early spring and summer months from drought, owing no doubt to the dry fall of 1909 and lack of rain in the early part of the summer of 1910. The plants made little growth until after a heavy rainfall in the first week of September, which started growth afresh and kept them growing late, with the result that the maple and cottonwood were all more or less damaged by frost, thereby weakening many

plants which were unable to recover and died off, causing many blanks.

Cottonwood should not be sent to the district surrounding the Goose Lake branch, or at least only sparingly, and then only when asked for, as they do not do well. I believe that the soil and rainfall have much to do with its poor showing in this locality. Hitherto the rainfall has been scanty. The soil is apparently fertile enough, but heavy, compact and inert; there is little humus in it, consequently it has to be worked deep to permit the entrance of air and moisture and enable plant roots to get away from the surface. I think that these conditions affect the cottonwood adversely. In the north country damage from frost was in evidence from too late growth. In Eastern Manitoba I observed no damage from frost; the plantations were unchecked from either frost or drought.

I have obtained data regarding the rain and snow-fall in Manitoba and the Eagle Hills district of Saskatchewan for the years 1910 and 1911. Those for Manitoba were furnished by the Manitoba Department of Agriculture at Winnipeg, and those for the Eagle Hills district by J. Saunderson, Esq., of Anglia, Sask. The following are

the figures :-

. 3 GEORGE V., A. 1913

				March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Total.
Station.		Location.							1910.		1		
	Sec.	Tp.	Rg.	In.	In.	Lii.	Ė	In.	In.	In.	In.	In.	In.
Manitoba— Hillview. Minnedosa Rapid Swan River	8 T 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	11228	23 wP 18 wP 19 wP 27 wP	2.25 0.72 0.18	1 · 46 1 · 30 0 · 82 0 · 76	1 0 1 63 2 1 0 83 2 1 1 8	23 8 5 17 8 8 5 17 8 8 5	25. 11.60 1.34 1.34 1.35	0.1.0.4 4.0.73 4.4.45	2.38 1.48 1.74 0.79	0.35	80.0	12 · 85 10 · 60 10 · 40 12 · 91
Average of above four Stations				:	:	:	:		:	:	:	:	11.69
									1911.				
Hillview. Minnedosa Rapid City Swan River					0.85	2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3	3 to 3 to 3 to 5 to 5 to 5 to 5 to 5 to	2.64 2.95 2.64 2.64 2.64	25 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2.77 2.77 2.37	2.56 1.86 3.07 1.12		21.7.1 18.64 20.92 16.60
Average of above four Stations										:			19.46
									1910.				
Saskatchewan—Anglia—J. Saunderson, observer.	30	30	16 w3	0.50	0.25	- 88 - 1	1.03	1.37	1.58	98.0	1.40		98:8
									1911.				
Anglia				08.0	1.13	10.31	3.66	1.81	0.73		1.14		19.57

These figures may be taken as fairly representative of the districts in which my work lay. In both provinces it will be seen that there is a great difference in the amount of moisture in the two years given. It is decidedly marked, especially in Saskatchewan, where the rainfall recorded for June, 1911, was 1.85 in. more than the total recorded for the whole year of 1910. But 5.50 in. of the rain which fell in June, 1911, fell on the 30th in two hours and twenty minutes.

Naturally soil conditions varied much in the districts covered by me in western Saskatchewan. The soils ranged from a pure sand to heavy clay. Much of it is a heavy brown compact loam, difficult to work, and, unless deeply worked, difficult of penetration by plant roots. Around the country north of the Canadian Pacific Railway and Grand Trunk Pacific Railway west of Saskatoon, the country has more bluff; the soil was in consequence more free and open and, therefore, naturally adapted for tree growth. In the north of Saskatchewan and most parts of Manitoba, the soil is a heavy black loam with abundance of humus, the accumulation of herbage which had died off each year and become incorporated in the soil. Trees grow luxuriantly in such soil, and I saw some great growth in most of the plantations set out.

Planting this year (1911) has been well done. No fault could be found unless with the cuttings; some men did not plant according to plan, but these were few.

Cultivation is another matter of supreme importance, and at times it is difficult to get some men to do it thoroughly in the heavy class of soils. They object to deep ploughing on account of the horse-power it requires, and this is just the very class of soil which needs deep and thorough preparation to give plant roots a deeper and wider pasturage and to enable them to resist drought more successfully. Root-cropping bare summer-fallow as a preparation is best for this class of soil, and indeed for all soils except very light sandy ones. All vegetation has a better chance of dying out, before the trees are planted.

Sweet grass is also prevalent in low spots, and is to be found everywhere. It is especially abundant in the north country where it is favoured with more moisture. This grass and quack or twitch grass, have given more trouble in the plantations, I believe, than all other harmful influences put together, and is a sure sign when found in the plantations of improper preparation of the soil. If it is not thoroughly cleaned out before planting, it will be impossible to get rid of it after setting out the trees.

I did not see any signs of insect pests or fungoid diseases of any kind this season. Hail was the only cause of damage that I saw, save the effects of drought and frost in the 1910 plantations.

The question of pruning is always turning up, but it is not encouraged except in

removing broken branches and trimming damaged trees.

There is a growing demand for tree seed. This is a good sign and will prove a valuable adjunct in the formation of plantations and woodlots of large size in the future; but little is known about tree seeds by the average farmer. To those desirous of having it, I have sketched the shape of seed of maple on slips of paper, if seed was in the neighbourhood, and told them where to procure it and at the same time giving them any other information that I thought useful along these lines. Many have tree seeds in their neighbourhood and do not know it is there, but are glad enough when told about it.

Respectfully submitted,

JAMES KAY,
Inspector of Tree Plantations.

No. 10.

REPORT OF WM. MACDONALD.

DEPARTMENT OF THE INTERIOR,
FOREST NURSERY STATION,
INDIAN HEAD, SASKATCHEWAN, JANUARY 18, 1912.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa, Ont.

SIR,—I beg to submit herein my second annual report on tree planting inspection work as carried on by the Forestry Branch, Department of the Interior.

The districts assigned to me included two branches of the Canadian Pacific Railway, viz., the Soo line (Drinkwater to North Portal) and the Outlook branch (Tuxford to Outlook), and the Goose Lake branch of the Canadian Northern Railway from Fiske to Alsask.

The total number of places on my list to be visited was 1,020. Of these, 593 were old applicants who had received trees from one to three years, and the remaining 427 were new, and, therefore, were visited for the first time with a view to receiving trees in the spring of 1912.

Trees were granted to 520 applicants for the coming season. Of this number 239 received trees for the second time to continue their plantations, and a small percentage of the latter number received an allotment of a hundred or two for the third time to fill up gaps which occurred through the dry season of 1910. The remaining 281 are new applicants to whom trees were granted for planting next spring. Seven hundred and sixty trees being the average per man, 395,200 trees will, therefore, be distributed over the above districts.

Of the new applicants 146 were not granted trees, owing principally to the lack of sufficient cultivation, more especially so in the newer districts such as the country west of the Saskatchewan river from Outlook, and in the Goose Lake country. In the earlier-settled districts many are selling out and the new owners either were not aware of the distribution arrangements, or, being too busy to get the land in shape, deferred their application for a year. A common mistake is the preparation of proposed plantations too close to buildings, the idea in this respect being 'the closer to buildings, the better shelter from the prevailing winds.' No thought of snow accumulation in the enclosure is entertained until the mistake is pointed out, when the applicant immediately commences to prepare his land according to directions given for the following year's distribution.

The plantations which were set out in 1911 did exceedingly well. They were well planted and cared for, and in the districts traversed an average of 95 per cent of the trees and cuttings were found to be alive at the time of inspection. Cottonwoods seemed dry and slow of starting into growth, but from June 30, when a general rain was experienced over Western Saskatchewan, it became apparent that the larger percentage of these began to shoot from the roots.

Although the dry summer of 1910 was so unfavourable to tree growth in the case of fresh-planted stock on the prairie, yet where cultivation was persisted in, many good plantations with strong vigorous growths of three feet amongst the maple, nine inches for the ash, and from two to four feet in the case of the cottonwood and willow were to be seen. This substantiates the statement that when the work is done thoroughly there may be no fear of the results which usually follow a dry season.

Plantations set out previous to 1910 are now showing up well, and great pride is taken in them by the owners. From measurements taken of three-year-old belts, the trees average about as follows in height: Maple, 5 feet; ash, 3½ feet; cottonwood and willow, from 7 to 9 feet. These heights are not unusual, and in the older settled districts along the Soo Line, many plantations may be seen from fifteen to eighteen feet in height.

The spring of 1911 was a most favourable one for the planting of trees, owing to the amount of moisture precipitated during the fall of 1910 and the heavy snow which fell during the winter. The spring also, opening up as it did with an abundance of rain, did much to stimulate this work just when desired. A dry spell later, however, struck south Saskatchewan, and grave fears were entertained of a recurrence of the 1910 experience which was even worse owing to the appearance of late frosts. Especially was this the case in localities southwest of Weyburn. On the morning of June 26 I noticed several plantations where the young shoots of ash had been affected in consequence of frost, but no permanent damage was done. From June 30 the rainfall was more or less general and above the average of late years over Western Saskatchewan. No damage was noticed, however, from winter-killing.

Along the Soo Line the soil varies from a sandy to a heavy chocolate loam with a clay subsoil. The latter makes cultivation a difficult matter owing to the baking of the surface soil when dry and the heavy sticky nature when wet.

In the districts covered over the Outlook branch, the soil is more of a rich sandy loam with more or less of a clay subsoil. The soil being more friable, this country is

well adapted to the growth of trees.

The soil in the country traversed from Fiske westward on the Canadian Northern Railway is generally a heavy clay, and in certain districts a hardpan subsoil with an open surface soil, known as 'loose top;' there being little vegetation on this, it can be easily worked up into fine shape soon after breaking, if backset deeply. This country

being newly settled, there are few plantations set out from which to compare results of the various species distributed.

Owing to the heavy snowfall of 1910 and 1911, many of the old plantations were damaged to a great extent with snow-drifts. More particularly was this the case where the plantations were of a width over eight or nine rows and with no snow-trap. The damage done in this way is rather unfortunate after the time and labour expended on them. Fine gardens are now to be seen here and there with abundance of small fruits and vegetables, many now taking advantage of the snow-trap for this purpose.

No damaging effects from insect pests or disease were perceived to any extent,

this being due, no doubt, to the cool, damp season of 1911.

With the extension of railways now under construction south of the Canadian Pacific Railway main line westward, and the Goose Lake Branch of the Canadian Northern Railway to Munson in Alberta, another big field is being rapidly opened, and many farmers whose places now lie remote from any existing line are already taking advantage of the co-operation of the Tree Planting Division of the Forestry Branch to shelter and beautify their new homes.

Your obedient servant.

WM. MACDONALD.

Inspector of Tree Plantations.

No. 11.

REPORT OF JAMES COWIE.

Department of the Interior,
Forest Nursery Station,
Indian Head, Saskatchewan, February 13, 1912.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa, Ont.

SIR,—I have the honour to submit to you my first report as Tree Planting Inspector in connection with the Tree Planting Division of the Forestry Branch.

The districts assigned to me for inspection were those traversed by the main line of the Canadian Pacific Railway, Crowsnest line west of Medicine Hat to Hillcrest, the Alberta Railway and Irrigation Company's lines from Lethbridge south to Stirling and Cardston and from Stirling south to the International boundary line, the Lethbridge-Carmangay branch of the Canadian Pacific Railway, the Calgary-Macleod line from Macleod to Midnapore, and the Calgary-Edmonton line from Airdrie to Didsbury.

I was under orders to return to Indian Head on September 28, to assist in the digging and heeling-in of the stock for 1912, and therefore 54 applicants on the Calgary-Edmonton line were visited in October by Mr. S. S. Sadler of the Forestry Office, Indian Head.

The total number of applicants on my list to be visited was 798. Of this number, 514 had received trees one or more years, and the remaining 284 were men to be visited for the first time in connection with the distribution of trees in the spring of 1912. The total number of men to whom trees were granted for 1912 is 395. Of this number, 223 had received trees one or more years who wish to further extend their plantations and to fill up failures owing to various causes, but principally through the dry season of 1910. The remaining 172, being applicants who have their ground prepared satisfactorily and have satisfied the requirements of the Forestry Branch, were granted trees for planting in the spring of 1912.

The number of trees allotted for these 395 applicants is 300,240, an average of 760 trees per applicant. New applicants had trees withheld, chiefly for two reasons, either because their ground had not been properly prepared, consisting of spring breaking, sod not sufficiently rotted, unbroken ground, wheat or other cereal growing on land intended for trees, or because of the proximity of the intended plantation to buildings. A thorough preparation of the soil and a minimum distance of one hundred feet from the buildings was insisted on. In some instances applicants had sold out, and an application to the Forestry Branch from the new owner was necessary before trees could be granted.

The plantations set out in 1911 are a decided success with a very small percentage of failures. I estimate 97 per cent of the trees and cuttings set out in the spring of 1911 have taken root. This is very encouraging when consideration is taken of the distance some of the applicants are from a railway station and the time clapsed in the transit of the trees. Frequent complaints were made of the carelessness of the express agents; some of the shipments of trees lay for weeks and in some cases were never received by the consignee, this no doubt being accounted for by the express charges being prepaid. In every case the applicants readily endorsed the recommendation of the Forestry Branch that express charges were to be paid by the applicant on receipt

of the trees in the spring. The fact that so small a percentage of the cuttings and trees failed to take root, and the vigorous growth were due to moisture in the ground in the spring, owing to the heavy snowfalls of the previous winter and the abnormal rainfall of the summer of 1911. In many cases the cuttings of Russian poplar and willow made growths of three feet and upwards.

The plantations set out in 1910 were not so successful, with a much larger percentage of failures on the lighter soils with gravelly subsoils. The prolonged drought

during the growing season of 1910 was the principal cause of failures.

It was gratifying to see that where thorough cultivation was persisted in and the air cells broken up through which any moisture in the ground was slowly evaporating, a larger percentage of trees and cuttings had taken root and in the summer of 1911 were making vigorous growth. Among the maples planted in 1910, growths of three feet were quite common, among the ash eighteen inches, and Russian poplar and willow, four feet.

From Lethbridge south on the Alberta Railway and Irrigation Co.'s lines, some of the older plantations planted previous to 1910 are to be found. These are grown under two conditions, cultivation and irrigation, and to judge by the flourishing plantations to be seen in the villages and along the road allowances, both systems have had good results. It is a common thing to see five and six-year-old plantations, twelve and fifteen feet high, enclosing gardens in which small fruits are being successfully grown. On the Macleod-Calgary line also, some of the older plantations are to be found. Around the Royal Northwest Mounted Police barracks at Macleod, an object lesson can be had. Cottonwoods and Russian poplars planted in 1907 and 1908 are from ten to twelve feet high, and the tamarack planted in 1910 are all alive notwithstanding the dry season and growing on gravelly subsoil. The beneficial effects of persistent cultivation are here thoroughly established.

West of Medicine Hat, where the soil is a light sandy loam, I saw cottonwoods and ash four and five years old, which had made vigorous growth up to 1909, killed back, root and branch, during the winter of 1910. This I attribute to the heavy rains which came early in the fall of 1910, starting growth and rushing a flow of sap. The trees were caught and killed by the first fall frost while still growing and before they had time to ripen their wood. This was the only case of killing outright I met with.

and, I am glad to say, was the exception and not the rule.

From range twenty-four, west of the fourth meridian, to range two, west of the fifth, owing to the elevation and extremes of temperature, only certain varieties of trees seem to be successfully grown. Russian poplar, willow and caragana seem to grow the best. Owing to the proximity of the foothills, precipitation is greater than in the prairie country further east; hence comes a richer soil and subsoil with the accumulation of decayed vegetation. Trees such as maple and cottonwood have a tendency to grow too late in the fall on this rich soil, and the young wood, not being ripe, is cut back by the early fall frost. On September 11, I found, while visiting section 22, township 17, range 29, west of the 4th, the growths of cottonwood and maple of 1911 killed back twelve inches with an early frost on September 6. This plantation is situated in a coulée and seemed to have suffered frost-hurt worse than plantations of a higher altitude.

In view of the freezing-back of these species the proportions of trees assigned to plantations in Southern and Western Alberta for 1912 are as follows:—Maple, 11·1 per cent; ash, 7·5 per cent; Russian poplar, 15·7 per cent; willow, 31·5 per cent; and caragana 34·2 per cent. The precipitation of Southern Alberta taken at Lethbridge for the past ten years averaged 16·16 inches. The rainfall for 1910 was 7·36 inches and for 1911 was 22·03 inches, or about three times the amount of 1910 and six inches

above the average for the last ten years.

I observed no damaging effects from insect pests. Cutworms partially girdled a few maples in some districts early in the season, but the damage was overcome by the 25—vi—5

vigorous growth later on. Owing to the abnormally wet season a few cases of rust were observed on some of the older cottonwood trees.

Soil conditions vary from pure sand around Medicine Hat to a heavy black loam further west, the accumulation of years of decayed ground-herbage forming a mild humus—a soil covering of the greatest importance in tree growth. From Macleod south to the International boundary line the soil is diversified from sandy loam to clay loam, well adapted for forming fibrous roots so essential to the healthy development of young trees.

In nearly every case a larger area of land was prepared than trees could be supplied for, and in some cases where a former applicant had received trees for two or three years and was written off the list, I found land prepared for further extension to plant with the root-suckers of cottonwood and Russian poplar that had sprung up in his garden patch through the mutilation of the roots of the parent trees by cultivation. Of the districts visited by me I would say that S5 per cent of trees planted under the co-operative tree planting scheme of the Forestry Branch are alive and 75 per cent growing well.

Taken as a whole, although this was my first year of inspection, I saw ample evidence of the enthusiasm with which the co-operative tree planting scheme is being carried on, an enthusiasm which leaves no room for doubt of its ultimate success. No country in the world would be more benefited by extensive planting than the prairie provinces of western Canada, as its long and cold winters would be very much ameliorated by it, while the great heat of summer would be moderated by the same cause and the agricultural interests of the country would become vastly improved, while every other branch of industry would be strengthened in proportion.

Your obedient servant,

JAMES COWIE,
Inspector of Tree Plantations.

No. 12.

REPORT OF GEO. KENNEDY.

DEPARTMENT OF THE INTERIOR,
FOREST NURSERY STATION,
INDIAN HEAD, SASKATCHEWAN, January 18, 1912.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa, Ont.

Sir,-I beg to submit my first report as Inspector of Tree Plantations.

I started inspection duties on the 5th June, the districts assigned me being those traversed by the Canadian Northern main line from Kamsack to Lloydminster and from Regina to Warman on the same system, all in Saskatchewan. Mr. James Kay, Inspector of Tree Plantations, was sent with me to give an insight into the work.

I had 767 names on my list and out of that number I visited 751. The remainder were not visited owing to the distance of their location from the railway. To each of these I mailed a printed form for the purpose of obtaining the necessary data in regard to their proposed plantations.

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For 1912 I have granted trees in 371 places, and out of that number 191 have already received trees one or more years. Those who have received trees on only one occasion are entitled to a further supply for another year, and there are 121 applicants who will get planting material for new ground in 1912. I granted trees to 179 new applicants, their ground and distances from buildings fulfilling the Department's requirements. There are 110 of the new applicants who will not get planting material in 1912, and the reason for this arises from various causes; such as: some of them have sold their farms, others have not sufficiently prepared their ground, others, again, have prepared their ground too near their buildings, and various other reasons also exist in consequence of which planting must be deferred. Those who remain and are still wishing trees will be visited in 1912 and will receive trees in 1913, providing their ground is in shape.

The plantations of 1911 have done splendidly and the young trees put on a good growth for the year, especially the maples. The trees could not be planted under better conditions, the weather being showery and continuing so more or less during the summer.

I should say there are 97 per cent of the 1911 trees alive; the only deaths worth mentioning are those of the cottonwoods and cuttings of Russian poplar and willow. On the whole the plantations of 1911 have done well, and, therefore, will have a good start in 1912.

Twenty-five per cent of the trees in the plantations of 1910 died owing to the small amount of precipitation during the growing season of that year. A large percentage of loss occurred among the Russian poplar and willow cuttings. The plants that were left made good progress during 1911, and are now thoroughly established. Applicants who desire to fill up failures in these 1910 plantations will receive planting material for that purpose in 1912.

Plantations set out previous to 1910 which have received proper cultivation are now fairly well established. The climatic conditions in 1911 have been very favourable to tree growth. The only district that suffered from drought was between North Battleford and Lloydminster, and consequently the trees in that district did not do so well as those in localities having a greater amount of rainfall.

I did not see any particular damage caused by late or early frosts, and insect pests and fungoid diseases were not to be seen. Around Bethune and Craik the rabbits were rather severe on the ash during the past winter.

The soil in the territory I covered is pretty much the same, being a heavy chocolate loam, but as one gets nearer the Alberta border it is lighter, being more of a sandy loam. However, it is all quite suitable for the different species sent out by the Department. Amongst some of the older plantations there are trees which have attained a height of fifteen feet, and their branches have shaded the ground sufficiently to dispense with further cultivation.

A source of great trouble to the plantations is the sweet grass, which is fairly prevalent in some districts. I do not know of any remedy for destroying this grass except to thoroughly remove the roots from the soil with a garden fork. Mulching with straw is not very successful, unless the mulch is renewed wherever the grass has not been completely smothered. I endeavoured to impress upon the new applicants the necessity of having their ground properly prepared and free of any grass roots, especially sweet and couch grass, before the trees are planted.

I had frequent inquiries for evergreen trees, and I see no reason why these should not do as well as the deciduous varieties. I saw several very good specimens of white spruce on farms during my tour, and believe if the evergreens were grown in groups, that they would do much better than if planted in rows or as single specimens.

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The number of applications which were cancelled on account of neglect did not amount to more than two per cent. On the other hand I found the farmers very proud and enthusiastic over their trees, in general having fulfilled all the requirements as set forth by the Forestry Branch.

Respectfully submitted,

GEO. KENNEDY,
Inspector of Tree Plantations.

No. 13.

REPORT OF EDWARD WALMSLEY.

Department of the Interior,

Dominion Lands and Crown Timber Office,

New Westminster, B.C., November 15, 1911.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa, Ont.

SIR,—I have the honour to submit herewith the annual report of this agency for the season of 1911, in connection with the protection from fire of the timber in that part of the Railway belt east from Port Moody to the boundary line between townships 10 and 11, west of the 6th meridian.

The months of May and June were not favourable to forest fires, the rainfall being sufficient to prevent fire from running. On the North Arm of Burrard Inlet, patrolled by Ranger Bray, one fire took place, this being on the townsite of Woodhaven, and no damage was done thereby to merchantable timber.

On the 15th of July a fire started at the south end of Coquitlam Lake (east side) on lands being cleared by the Vancouver Power Company at that point. This proved to be by far the most serious fire during the season, continuing to burn for some six weeks, notwithstanding the most earnest efforts put forth to subdue same by Rangers Rowland, Marshall and Martyn, assisted by men in the employ of the company mentioned. This fire ran over an area of thirteen hundred and sixty-five (1,365) acres, nine hundred and thirteen (913) acres of vacant land and four hundred and fifty-two (452) acres of land under license. The quantity of timber affected by the fire is 14,280,000 ft., board measure—10,956,000 ft., board measure, on vacant land and 3,324,000 ft., board measure, on lands under license.

Some of the timber is a total loss, but a large percentage can be saved if logged off in one or two years. The chief difficulty found in fighting this fire was the fact that it was on a steep mountain-side, where neither soil nor water was obtainable, and, although fire-breaks were cut at various points, the fire swept over them and continued to spread.

On the Coquitlam river, patrolled by Ranger Marshall (with the exception of the fire above mentioned), only two fires took place during the season, both of which were on private lands. In one case fifty cords of shingle bolts were destroyed and in the other the damage was nil. The Pitt river and lake district, also covered by the above ranger, was by careful attention kept free from fire during the season.

With your permission I engaged a ranger this season to patrol the Lillooet river and Upper and Lower Lillooet Lakes, adjacent to which there is a large quantity of valuable timber, the greater part of which is held under license. The result of this

follow the matter any further.

man's work is found in the fact that, while there were a number of small fires, which consisted mostly of fires on settlers' lands and of camp-fires left unextinguished, none of these were allowed to reach the timber.

In township 1, west of the coast meridian, patrolled by Ranger Johnson, no fires occurred, nor did any fires take place in township 7, east of the coast meridian, patrolled by Ranger Gairns. In township 2, west of the coast meridian, patrolled by Rangers Jameson and Wales, ten fires, all on private lands, were attended to by these rangers, who assisted in subduing them in order to prevent their spreading to adjoining timber. In this they were successful, as no damage was done to timber under license. The only vacant Dominion Government timber in this township is the north half of the southeast quarter of section 34, which sustained no damage from fire during the season.

In townships 13 and 16 east of the coast meridian, patrolled by Rangers Bell and Chapman, several small fires on private lands were looked after and prevented from doing any damage. In that part of township 15, east of the coast meridian, lying to the west of State river, and townships 4 and 5, range 3. west of the 7th meridian, patrolled by Ranger Gilchrist, the parties operating on Timber Berth 'X' within the first township mentioned, had a permit in the latter part of the month of April to set fire for clearing purposes. The fire got beyond their control and burned some forty cords of shingle bolts, which timber was later accounted for in the mill returns, and royalty dues paid thereon. Another fire in this district started on the 17th of July, from the operations of the Western Canada Power Company, who are clearing land to be flooded by a dam on Stave river. Two hundred thousand feet, board measure, of timber was damaged by this fire, which was fought and finally subdued by the company without any expense to the Department. A small fire on Timber Berth No. 106 on the 24th of July was subdued without any damage by the use of a pump and hose from the Western Canada Company's Plant.

In townships 18 and 21, east of the coast meridian, and township 4, range 2, west of the 7th meridian, patrolled by Ranger Hughes, no fires took place on Dominion lands. Within townships 20, 22 and 23, east of the coast meridian, in the first township there is considerable vacant Government land, in the second, Timber Berth No. 223, and in the last-named township Timber Berth No. 55. No fires took place in either of the two townships first mentioned, but several fires occurred within Timber Berth No. 55. Ranger Fadden, whose duty it was to cover this district, reported a fire on the 1st of May, in a pile of debris left by the employes of the Provincial Government in the building of a road which runs partly through this berth. This fire damaged about ten thousand feet, board measure, of timber. On the 15th June a squatter on lands within the berth, by the name of Jarabck, was found with a fire burning, for which of course he had no permit, so the provincial officials have at my request refused to issue permits to squatters on lands under license. The ranger requested Mr. Jarabek to put out the fire but he (Jarabek) refused to do so. On being informed of the circumstances I instructed the ranger to have a summons issued for violation of the Bush Fire Act. This was done and the date of the trial fixed for the 23rd of June. The defendant, however, failed to appear and it was necessary to have a bench warrant issued for his arrest. The trial was concluded on the 29th idem, the magistrate dismissing the case, as the fire did no damage. I took the decision in this case up with the Hon. the Attorney-General for this province, who agreed with me that it was not in accordance with the Act, but as I was of the opinion that the defendant was not likely to again commit himself in this way, I did not

On the 19th of July and 3rd of August, a fire started on the United States side of the line, crossed the boundary and did damage to the timber on this berth to the extent of 100,000 ft., board measure. Another fire on lands within the berth occupied by a squatter occurred on the 24th of July and damaged some 30,000 ft., board measure,

of timber. In all 140,000 ft., board measure, of timber was damaged by fire on this berth during the season and about 40,000 ft. of this quantity is a total loss; the balance can be saved if logged off within a reasonable time. Timber Berth No. 55 comprises an area of 15,900 acres, and there are from one hundred to one hundred and twenty-five squatters living within the berth. These require a careful watch in order to prevent them from setting fire during the dry season, and with this object in view I instructed Ranger Fadden to devote the greater part of his time to this limit, with the result that only a small quantity of timber was destroyed by fire. Ranger A. R. Hipkoe replaced former Ranger Jasper Fadden as patrol on the Chilliwack River in township 25, east of the coast meridian, and townships 1 and 2, ranges 26, 27, 28 and 29, west of the 6th meridian. The new ranger is a young man who has been brought up in that district and is, therefore, familiar with all parts of it. Only one fire occurred there during the season, this being a large fir tree containing about 7,000 ft., board measure. Another fire, caused by lightning, started on lot No. 439, which is under the control of the provincial government, and destroyed about 50,000 ft., board measure. of timber. Under your instructions a cabin was erected during the season at Chilliwack Lake for the use of the ranger. This will prove to be very useful for the safe keeping of tools and supplies to be used in case of a fire, as this district is very difficult to reach, and on this account it is necessary to provide as far as possible against any contingencies which might arise. Next season I propose to ask your permission to construct another building midway on the trail between Cultus and Chilliwack Lakes.

Ranger Dennison, who patrolled along the Fraser River in townships 23 and 26, east of the coast meridian, and townships 2 and 3, range 29, west of the 6th meridian, gave considerable of his attention to the right of way of the Canadian Northern Railway, and during the season only one forest fire of importance took place, this being at what is called Vedder Mountain, in township 23, east of the coast meridian; it was caused by the clearing of a part of the mountain where the provincial government is erecting a rock-crushing plant. The fire was attended to by men in the employ of the

provincial government and no damage was done to merchantable timber.

Only one fire took place on Harrison Lake. This is reported by the ranger, R. Siddall, to have crossed from provincial lands into timber berth No. 534 at the extreme northern boundary of the Railway Belt. The fire ran over two acres or more of land within the berth mentioned, but was fortunately prevented from doing any damage to standing timber. Next season I propose to ask you to extend to the ranger in this district the same privilege as is accorded in two other cases, namely, to supply gasoline for the use of a power boat, which will make the services of the ranger much more valuable; at present he must use a canoe, and, as the water in this lake becomes very rough at times, the ranger is, consequently, frequently wind-bound, whereas if he had

a seaworthy power-boat he would be in a position to weather any storm.

From Hope to North Bend, a distance of slightly over forty miles, three rangers, Messrs. Weaver, Manzer and Tweedell, were engaged during the greater part of the season in patrolling the right of way of the Canadian Northern Railway on the south side of the river. With the co-operation of the provincial rangers, contractors on the right of way were prevented from burning any debris during the months of July and August, and, although several small fires occurred within these months (the cause of which it was not always possible to ascertain), no damage whatever was done thereby to the timber along the right of way. The timber on the Coquihalla and Nicola rivers, which empty into the Fraser river at or near Hope, received careful attention and no damage was done to the timber in question by fire. Owing to the rush of mining prospectors via Silver Creek into what is called Steamboat Mountain on provincial lands, where a gold find was reported, the licensee of timber berths on this creek kept a ranger patrolling for some three months in order to keep a watch on the prospectors. This ranger reported from time to time to the Dominion government ranger at Hope and the foresight of the licensee in this respect is proved by the fact

that, although many campfires were found along the trail, which had not been extinguished by the prospectors, these were attended to by the ranger and not allowed to spread as would no doubt have been the case had no person been interested therein. The rangers employed on the south side of the Fraser river, from their position, were able to keep a close watch along the line of the Canadian Pacific Railway on the north side of the river and, although some twenty-one fires occurred along this line of railway between Choate Siding and North Bend, a distance of thirty-four miles (all of which were said to have been caused by sparks from locomotives), these were, with the assistance at times of the rangers mentioned, together with Ranger Teague at Yale, subdued without any damage to standing timber. It is hoped that next season arrangements will be made to take advantage of the amendment to section 30, paragraph F, of the Railway Act, by calling upon the Canadian Pacific Railway Company, through the Board of Railway Commissioners, to establish a patrol on that part of their railway from Agassiz to North Bend, which, being upgrade, necessitates the forcing of the locomotives and the consequent emission of fire, notwithstanding the fact that such locomotives are equipped in accordance with the regulations as laid down by the Board of Railway Commissioners. In this connection I may say that under the authority of the board, a rigid inspection was made, throughout the season, of all locomotives running on the western part of this line, and in nearly all cases they were found to comply with the requirements of the regulations. The quantity of timber damaged or destroyed by fire on Dominion lands within this agency, during the season is 14,627,-000 ft. and 40 cords of shingle bolts. About 5,000,000 ft. of this quantity is a total loss; the remainder can be saved if logged over within one or two years. Each succeding year adds more difficulties to the work of fire-ranging in the advent of new railways and settlers, and it will be necessary to extend the service from year to year in order to meet these contingencies. I sincerely appreciate the prompt manner in which you have met any suggestions made to you during the season for the improvement of the service, and I am pleased to report that the rangers have been found willing to carry out their duties to the best of their abilities.

Respectfully submitted,

EDWARD WALMSLEY,
Acting Crown Timber Agent.

No. 14.

REPORT OF R. J. STEWART.

DEPARTMENT OF THE INTERIOR,
REVELSTOKE, B.C., January 1, 1912.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa, Ont.

SR,—I have the honour to submit herewith my report for the season of 1911, covering the protection from fire of the forest in that part of the Railway Belt known as the Kamloops District, over which I had supervision.

In Mr. F. Abey's district south of Illecillewaet there were during August two small fires caused by lightning, in which no timber of value was destroyed. The cost of fighting these fires was \$102.50. Mr. F. Ashdown, who patrolled the new Golden-

Crowsnest line south of Golden, had one small fire during April and two during June. The cost of fighting these fires, in which no timber was destroyed, was \$31.50. In Mr. J. Bell's district in the vicinty of Grandprairie and Spallumcheen Lake during May a small fire was caused by settlers clearing land, but no damage was done. On July 27 he fought a fire (cause unknown) at Pillar Lake, in which 10,000 ft., board measure, of timber was destroyed. The cost of fighting these fires was \$69.50.

Mr. C. D. Collett, who patrolled the railway line along the Nicola river, put out a fire on July 14 at Agate Creek which covered 200 acres but burned only a small quan-

tity of young growth. The cost of extinguishing this fire was \$146.

Mr. W. J. Dickey, who patrolled the Revelstoke and Arrowhead branch south of Revelstoke, fought, in all, 24 fires during the summer, none of serious proportions. On July 22 one caused by lightning near Timber Berth No. 289 burned 3,000 ft., board measure, of timber, and on June 1 six small fires caused by railway engines burned 3,000 ft., board measure. He expended during the summer \$315.70 in fighting fire.

Mr. F. E. Forrest, who patrolled the railway line in the vicinity of Albert Canyon, put out four small fires, none of which did any damage, at a total cost of \$104. In the district of Mr. R. Johnstone, who patrolled the Okanagan branch of the Canadian Pacific Railway there were two rather large fires. On June 22 a fire, starting from unknown causes, in section 35, township 19, range 9, west of the 6th meridian, covered 400 acres, and burned 100,000 ft., board measure, of timber. The cost of fighting this fire was \$130. On June 18 a fire, caused by lightning, at Trinity Creek covered 1,000 acres and burned 150,000 ft., board measure. The cost of fighting this fire was \$835.

Mr. J. Lidstone, who patrolled the railway line in the vicinity of Taft, had three fires in his district. Two were of no size, but one on June 1, at Craigellachie (cause unknown) burned 20,000 ft. of timber. The total cost of fighting the three fires was

\$20.

Mr. R. Cossaboom, who patrolled Salmon Arm and Shuswap Lake, put out one fire in Annisty Arm on August 1, which, starting from unknown causes, covered 800 acres and burned 200,000 ft., board measure, of timber. The cost of fighting this fire was \$417. On August 19 he extinguished a fire caused by lightning at Seymour Arm, which covered eighty acres and burned 25,000 ft., board measure. The cost of fighting this fire was \$435.

In the district of Mr. G. Lund, who patrolled the railway line west of Revelstoke, on July 17 a fire (cause unknown) twelve miles west of Revelstoke, covered two square miles, burned 100,000 ft., board measure, of timber and 500 cords of wood, and cost \$620 to extinguish. He had two other fires caused by lightning, which did no

damage but cost \$260 to fight.

In the district of Mr. J. Mizon, who patrolled the railway line in the vicinity of Malakwa, there were in all five fires. On June 2 a fire caused by a railway engine covered 20 acres, burned 5,000 ft. of timber and cost \$69 to put out. On June 13 a fire seven miles northeast of Craigellachie, caused by lightning, burned 15,000 ft. of timber and cost \$121 to put out. On August 4 a fire caused by lightning covered fifty acres, burned 12,000 ft. of timber and cost \$227,72 to put out. The other two fires, which did no damage, were extinguished at a cost of \$380.

In Mr. H. A. Morris' district in the vicinity of Revelstoke there were two fires. On June 19 a fire near the Dominion Sawmills limits, caused by a logging engine, covered an area 5 miles long and about half a mile wide, burned 200,000 ft. logs and killed 250,000 ft., board measure, of young timber. This fire cost \$353 to put out. On August 2 a fire in the same vicinity caused by lightning covered 2 acres, burned

4,000 ft. of timber and cost \$76 to extinguish.

Mr. A. McGillivray, who patrolled the railway line in the vicinity of Semlin and Spence's Bridge, put out five small fires at a total cost of \$135.

Mr. J. D. McGuire, who patrolled the country south of Salmon Arm, put out two small fires at a total cost of \$84.25.

Mr. D. Orr, who patrolled the Revelstoke and Arrowhead branch south of Wigwam, had a series of fires caused by railway engines, during June and July, burning over an area of about two square miles which had been practically all logged over, but 500,000 ft. of cut logs were destroyed. These fires were fought at a total cost of \$1,755. On August 2 he extinguished a fire near Timber Berth No. 112, caused by lightning, covering fifty acres and killing 100,000 ft., board measure, of young trees. The cost of fighting this fire was \$423.50.

In the district of Mr. W. R. Peacock, who patrolled the railway line in the vicinity of Notch Hill and Shuswap, there were two fires which destroyed no timber and

were extinguished at a cost of \$800.

In the district of J. C. Sheirlock, who patrolled the railway line in the vicinity of Golden and Donald, there were in all four fires. On July 18 a fire six miles north of Donald, caused by lightning, covering an area of two acres, burned 15,000 feet of timber and was put out at a cost of \$18. On July 27, a small fire caused by lightning burned over one acre with no damage to timber, and was extinguished at a cost of \$15. On August 22, a fire caused by lightning near Timber Berth No. 85, covering an area of 500 acres, burned up some small growth and was extinguished at a cost of \$54. On September 3, a fire, caused by lightning, 23 miles north of Donald, covering an area of 35 acres, burned 20,000 feet of timber and cost \$108 to put out.

In the district of Charles Todd, who patrolled the country in the vicinity of Adams Lake, a fire at Louis Creek on August 2 burned over fifteen acres with no damage to timber and was extinguished at a cost of \$24. Mr. Todd put out several small fires resulting from camp-fires, which did not damage any timber, without incur-

ring any expense.

Summing up, there were destroyed in these fires 1,555,000 feet, board measure, of timber and 500 cords of cordwood. The cost to the government of extinguishing these fires, in addition to the ranger labour, was \$8,336.40.

Respectfully submitted,

R. J. STEWART, Chief Fire Ranger.

No. 15.

REPORT OF LETELLIER O'CONNOR.

Department of the Interior,

Dominion Lands and Crown Timber Office,

Medicine Hat, Alberta, December 14, 1911.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa, Ont.

SIR,—With reference to your communication of the 10th ultimo I beg to furnish the following report regarding my work of organizing more thoroughly the fire ranging service on Lesser Slave lake, Lesser Slave river, the Peace river and the Grande Prairie.

As instructed by you in your communication of the 7th April last, I proceeded to Edmonton, where I interviewed Mr. J. E. McLaggan, who has general charge of the

fire-ranging in the Edmonton district and northwards, and reached an understanding so that there would be no overlapping of ranger districts and that the districts of rangers working from the south under Mr. McLaggan would properly connect with

those appointed by me, who would be working from the north.

I left Edmonton on May 5, and went by stage to Athabaska Landing, thence by steamer to Mirror Landing. From Mirror Landing I proceeded by pack train to Grouard, stopping at Sawridge on the way, where I interviewed Fire Ranger Lyllick and went into the matter of his district with him. At Grouard I interviewed Fire Ranger Cunningham and allotted him a district. At this latter place after careful consideration I appointed J. W. Allonby as fire ranger, and allotted him a district.

At Grouard I took a team and crossed the portage to Peace River Crossing, where I interviewed Fire Ranger Knot, and appointed Fire Ranger L. Bourassa, allotting each a district. From this place I proceeded by steamer to Fort Vermilion, where I appointed John Bourassa as fire ranger. I also interviewed Fire Ranger Southerland.

I allotted both of them districts.

From Vermilion I proceeded to Red river, went up the river a short distance and then returned to Peace River Crossing; thence by team to Dunvegan, where I interviewed Fire Ranger Ferguson, and appointed Fire Ranger Martineau, giving each a district.

The list of fire rangers, their addresses and districts assigned to each will be found further on.

After visiting the Grande Prairie I returned to Edmonton, following the trail along which I had gone in. When on this journey I went into the matter of fire protection with all whose experience I considered would be of benefit to the Department and as a result I beg to submit the following observations and recommendations.

It would appear that many fires result from fires that have been smouldering in moss or muskegs throughout the winter, some caused by hunters and travellers leaving their fires in the fall after the fire rangers are called in, that is to say from October 30 until the snow-fall. These fires apparently smoulder all winter. Others are caused by fires which are left burning by campers in the winter, and which, after the snow is melted, work their way into the moss or muskeg and smoulder there till after the snow disappears, and after a short spell of dry weather break out into serious fires.

In this connection I beg to recommend that the fire rangers be put on their districts between 1st and the 15th of March and continue their work till the first real snow in the fall, or till November 1, and thus stop these fires in the incipient stage.

With regard to the right of our fire rangers to call out people to fight fires, the provincial authorities claim that our men have not this right, and while not wishing to enter into the merits of this question, I beg to suggest that steps be taken to have their powers clearly defined before someone makes a test case of the same. This I am expecting, as most of the new settlers are not very willing to go out to fight fires, and should it be decided that our fire rangers have no authority to call out people, their usefulness would be greatly curtailed. I also beg to recommend that fire rangers be given the power of constables.

Another thing which I consider would greatly benefit the fire-ranging service in these districts would be the construction of boats suitable for the navigation of Lesser Slave Lake and River and of Peace River. The former boat might be stationed at Sawridge, where it could be reached by wire from Mirror Landing at the mouth of the Lesser Slave River, and from Grouard at the west end of Lesser Slave Lake, when not patrolling the lake and river. The other might have its head-quarters at Peace River Crossing, the central point on the Peace River patrols, and could be reached as far west as Dunvegan by wire when the line is completed at that point, which it is expected will be next spring.

I also consider it would be advisable to have a chief fire-ranger appointed, whose duties would consist of laying out the different districts of the fire rangers in these

districts, travelling all over the different patrols and thus keeping an eye on the way in which the different fire-rangers are doing their work, certifying their diaries and accounts and making any alterations he would consider necessary for the better protection of the timber in question as would be required from time to time.

The country adjacent to the Lesser Slave Lake and River is covered with fair-

sized spruce and jackpine, with a mixture of poplar.

From Grouard to Peace River Crossing the country is mostly covered with tall poplar timber of merchantable quality. There are also a certain number of clumps of good jackpine asd spruce.

The Peace river is lined on both sides with small poplar, spruce and jackpine, but some distance back from the river there are good large patches of good merchant-

able timber-jackpine, spruce and poplar.

From Dunvegan to Grande Prairie the timber is mostly a mixture of spruce, jack-

pine and poplar, some of which is of good merchantable quality.

On the Grande Prairie and the Spirit River Prairie the country is covered with poplar bluffs, with no merchantable timber except on the outer edge between the prairie and the Smoky and Wapiti rivers where some very fine jackpine and spruce are to be found.

The following is a list of the fire rangers, their addresses and districts covered

by each:-

Thomas Lyllick, Sawridge, patrols from the mouth of Lesser Slave river to its source at the east end of the Lesser Slave lake; from the east end of the Lesser Slave lake on the north shore to the Narrows and on the south shore of Lesser Slave lake to Swan river.

Sam. Cunningham, Grouard, patrols on the north side of Lesser Slave lake from The Narrows to Grouard and on the south side of Lesser Slave lake from Swan river

to Grouard, and from Grouard to Sturgeon lake.

J. W. Allomby, Grouard, patrols from Grouard to Little Smoky river via Winagami Lake and from Grouard to Little Prairie and from Grouard to Whitefish lake.

Fire Ranger Knott, Peace River Crossing, patrols from Little Prairie to Peace River Crossing and from Peace River Crossing to Cadotte river, and from Peace River Crossing to Dunvegan.

Fire Ranger L. Bourassa, Fort Vermilion, patrols from Cadotte river to Fort Vermilion and from Fort Vermilion towards the Hay river and from the mouth of

Keg river towards Keg River Prairie.

Fire Ranger J. Bourassa, Fort Vermilion, patrols Peace river below Fort Vermilion and along the Loon and Wabiskaw rivers to Arout lake and the Caribou Mountain trail.

Fire Ranger Southerland, Wabiskaw, patrols from Wabiskaw southeast towards Pelican Mountains and the Athabaska river and from Wabiskaw to Whitefish lake.

Fire Ranger D. McDonald, Dunvegan, patrols Peace River above Dunvegan and from Dunvegan in a northwesterly direction towards the Clear Hills.

Fire Ranger Ferguson, Spirit river, patrols from Spirit River settlement towards St. John via Pouce Coupé Prairie and from Spirit river to Smoky river south of Egg lake and from Spirit river to Grande Prairie settlement.

Fire Ranger Martineau, Spirit River, patrols from Grande Prairie on the Edson Trail to Waskigan (House River) where he meets the fire ranger working from the south—to the Smoky river, Sturgeon lake and along the south side of Grande Prairie Settlement.

In arranging these patrols I have taken into consideration the amount of travel on each as near as could be ascertained, also the quality and quantity of lumber to be protected, and arranged so that the forest rangers are not overlapping into each other's territory and at the same time have all the patrols join. A glance at the map will show this plainly.

I beg to inform you that I made an advance of \$50 to each of the above fire rangers and have forwarded their receipts for same with my monthly statement of expenditure. In addition to this I also furnished each with an axe and a spade, but did not find a collapsible bucket to meet the requirements. The latter should be furnished them. I also distributed fire notices and the rangers are posting some of these articles.

Should the boats I mentioned be put on, an extra supply should be kept on board for use when a gang of men are taken to fight fires, otherwise two or three extra articles of each kind might be kept at the fire ranger's residence for each district.

I am glad to state that no fires of any great importance got away from the fire rangers during my soujourn in these districts, and from personal observation and information received from disinterested and trustworthy parties the fire ranging has been conscientiously performed by the fire rangers.

Respectfully submitted,

LETELLIER O'CONNOR,

Inspector.

No. 16.

REPORT OF H. A. CONROY.

DEPARTMENT OF INDIAN AFFAIRS, CANADA,
OTTAWA, March 18, 1912.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa, Ont.

Sir,—I beg to present my annual report on the fire ranging work in the Athabaska and Peace River districts.

It is a matter of no small difficulty to select suitable men to act as fire-rangers, as the requirements are many, and there is a comparatively small population from which to make a selection. A fire-ranger in these northern districts must be able to speak the native languages, and must be an expert in a canoe and among horses. He must know a very large tract of country like a book, for on many occasions he is called upon to make long trips inland from the rivers, where there are no trails to follow or blazes to guide him.

Some years of experience in supervising this work have led me to believe that in districts such as these, where travel is very difficult, the department would be wise in having the fire guardians work in pairs. One man, who knows the country well, with a helper or assistant under him, could cover far more territory in much less time than two men working separately. This system would allow of more frequent patrols, and consequently lessen the danger of fires in the district the men protect. A man alone in a canoe often finds it very difficult—sometimes impossible—to track against the swift current of the rivers. Two men can always travel up and down the rivers, no matter in what stage of water. The same principle applies when working inland. Two men with pack and saddle horses can divide up the work and cover more ground in shorter time than can each man working separately.

If this plan were adopted, I would suggest that the man in charge be paid \$5 per day, and his assistant \$3 per day. I am confident that the small increase in expendi-

ture would be more than justified by the better service obtained.

Wherever possible, small steamers, similar to the one at Athabaska Landing, would be a great improvement over the present system of canoe and horse work. A small steamer placed below Grand Rapids on the Athabaska river could run from the rapids to Smith on the Great Slave river (some 300 miles), from the mouth of the Peace to the chutes (about 300 miles) and for some distance from McMurray up the Clearwater river. The timber along all these rivers is especially good; spruce and black-bark poplar grow to surprising sizes, and will in the future be a most valuable asset to the country.

I would also recommend a small steamer between Smith and Resolution, and one on Lesser Slave lake, both of which would prove beneficial in guarding the excellent growth of timber throughout these districts. In my opinion, a small steamer, wherever it can be used to advantage, is by far the best way of handling fire-guardian work, and, though the initial cost is considerable, the increased and better results obtained make it a saving in the end.

The fire guardians in my district are as follows:-

William Biggs. From McMurray up to Clearwater, and west from McMurray inland to the headwaters of Horse creek, a distance of some seventy miles.

John McDonald. McMurray to Grand Rapids, and, when occasion demands, from Grand Rapids to Athabaska Landing.

Tom McLelland. From McMurray down the Athabaska to Big Point.

Peter Loutit. From Big Point to Chipewyan, and the country surrounding the post.

J. Fraser. From the mouth of the Peace to Smith Landing.

A. Sutherland. West of the Athabaska river, principally in the Wabiskaw district.

Respectfully submitted,

H. A. CONROY,
Inspector, Treaty No. 8.

No. 17.

REPORT OF GEORGE DOUGLAS.

BATTLEFORD, SASKATCHEWAN, September 30, 1911.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa.

Sm,—I beg to present my annual report on forest fires in Battleford district.

The origin of the big fire in the spring was a camp-fire left by two Indians at Pelican Lake. These I directed to be prosecuted, but, owing to the unsatisfactory way in which the evidence was given, the accused were not convicted, but the fact that an Indian could be prosecuted has had a wholesome effect on all the district. I have now sent Dominion Fire Ranger Beatty to Isle à La Crosse to prosecute Revillons and Hudson Bay men for leaving a camp-fire burning which got into the moss but was extinguished by Beatty before any damage was done. Apart from a few small areas burnt by camp-fires I have nothing to report as having been damaged by fire.

I have had no timber damaged in my district this year of any commercial value except two small berths, Nos. 14 and 16, at the south end of Green Lake belonging to the Big River Lumber Company. This is the fire that came up from Pelican Lake.

I am inaugurating in my district a system of protection in conjunction with the provincial government.

I took the matter of prairie fires up with the Deputy Minister, Mr. A. F. Mantle, at Regina and induced him to get a badge made and appoint some man in each township as voluntary Fire and Game Warden, making each man responsible for his own township. I am getting a chain of such wardens right across the country south of the timber belt and so am trying to prevent any fires getting in from the south. Most of the fires, including the late disastrous fire, came from the south and I attribute our freedom from fires this year to good work these wardens in conjunction with my firerangers have done this season. It is my intention to recommend for appointment to the provincial government about one hundred more such wardens and have each chain of men from east to west about twelve miles apart, so as to effectually prevent any fires coming in from the south. The men are proud of their badge (blue and gold with coat of arms of the province) and their official appointment. As to fires in the timber, only continually patrolling and cautioning hunters and prospectors will prevent them. Two of my fire-rangers, W. Venne and Pierre Morin, have been very unsatisfactory this year, and I recommend that their services be dispensed with at the end of this season. Fire-rangers Beatty and Murray are ideal fire-rangers and are satisfactory beyond expectation.

I have covered the ground from Green Lake to Portage la Loche, Cold Lake, Turtle Lake, and up to date everything is safe. The right of way on the Canadian Northern Railway is in a very satisfactory condition; the locomotives I have inspected this year have also been in good order. Only on one occasion have I had to call the attention of the boiler-maker to a bolt-hole in the smoke-box. As I came to Prince Albert on the 29th I found locomotive 88 from Saskatoon to Prince Albert with the dampers of the ash pan open. I called the engineer's attention to the same and he closed it. I cautioned him.

I would recommend that we be allowed to have galvanized-iron ration-boxes fitted in the canoes with locks on. My fire-rangers have had their rations eaten by dogs when one hundred miles away from any post, and fortunately shot a bear which they had to eat or they would have been in a bad way. The Indians do not feed their dogs in summer, but turn them loose, and when the dogs see a camp-fire they know there is a chance of obtaining food, and loss of food in a north country is serious. One of the rangers had to shoot five dogs to protect his rations on his last journey.

Respectfully submitted,

GEORGE DOUGLAS, Chief Fire Ranger.

No. 18.

REPORT OF A. L. ROBERTSON.

DEPARTMENT OF THE INTERIOR,
FORESTRY BRANCH,
PRINCE ALBERT, SASKATCHEWAN, March 14, 1912.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa, Ont.

SR,—I beg to submit my annual report in connection with forest fire protection service for the season of 1911.

During the early spring season, from the time the snow disappeared (about the end of March) until May 8, the absence of rain, continuous warm weather and no growth of vegetation all tended to make the condition of all inflammable matter very dangerous in the open areas, and doubly so in the timbered belts, where abundance of

dry vegetation of every description was to be found.

Between the 4th and 6th of May fires were started by ranchers in the Thick Wood Hills, a belt of hilly country stretching in a southeasterly direction from Fort Mc-Murray in range 10, township 88, west of the 4th meridian, to the Pas Mountain, in township 48, range 2, west of the 2nd meridian. The soil in the above range is mainly a deep black marly clay, producing a dense growth of vegetation each season. When the ranchers were preparing new hay-bearing areas, which they intended to cut over the following season, the speediest and cheapest way was to set fire to the growth when the wind was high and the vegetation perefetly dry, thus burning away the old grass. I am informed by settlers who have taken lands in the vicinity of the ranching areas that no provision is ever made to confine the burning-over of new hay lands to areas that would provide enough hay for ranchers. If the wind is sufficiently high and the vegetation dry, the fires generally run through miles of green timber, killing this timber.

On the 4th of May, 1911, fires were started in the areas described above. The wind was blowing at a moderate rate, but increased hourly until it reached a perfect gale, which carried burning tufts of grass and cinders half a mile in advance of the line of fire. This fire swept across from range 16, west of the 3rd meridian, to range 27, west of the 2nd meridian, in an easterly direction. I am of the opinion that settlers in the vicinity of the fire greatly increased the volume of the fire by back-firing, especially those living on lands timbered with poplar scrub from two to six inches in diameter. The ground was also covered with dry leaf-mould and debris from a former forest fire that passed over the area in 1885, thus widening the front of the line of fire considerably. The fire travelled over this area at a terrific rate until it reached the coniferous timber, where wet moss and damp debris scattered through the forested area usually provide a protection to this class of timber. Owing, however, to the continued period of dry weather, the debris was very dry and contributed much in destroying the trees by reaching the roots. About half of the damage done to the timber was from fire reaching the roots. In workings where logging operations had been carried on the whole of the young timber within the boundaries of the cuttings was completely destroyed. The extent of the damage done to the timber of milling quality was approximately 110,000,000 ft., board measure. Nearly the whole of the above quantity was on areas allotted as timber berths. Of the above timber, 72,000,000 ft., board

measure, was manufactured into saw-logs during the past logging seasons of 1911 and 1912. The berths mainly affected by the fire were Timber Berths 1048, 1049, 66A, a portion of 686 and 474.

During the first part of the season eight fire-rangers were employed in the forest fire protection service in the district under my supervision. This number was increased to fourteen in the latter half of the season, thus reducing the size of the areas to be

patrolled.

Many small fires occurred in the settlements south of the heavily timbered belt. but these were soon got under control by the fire-rangers. During the past season an effort was made to have the settlers residing in the wooded areas co-operate with the fire-ranger in the forest protection, and during the last two months of the season no fires got away. An effort will be made, next season, to have the settlers' further co-operation, and, when they are clearing the land, to have the fire-ranger of the locality supervise the burning of the brush and keep fire under control.

Respectfully submitted,

A. L. ROBERTSON, Chief Fire Ranger.

No. 19.

REPORT OF ANDREW FREEMAN.

DEPARTMENT OF THE INTERIOR,
DOMINION LANDS AND CROWN TIMBER OFFICE,
WINNIPEG, MANITOBA, March 22, 1912.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa, Ont.

SIR,—I have the honour to submit the following report respecting forest fires in

the Winnipeg district during the season of 1911.

In accordance with your instructions, the fire-ranging service in the district northwest of Dauphin was last year placed under control of Forest Rangers W. A. Davis and A. McLeod, while I was instructed to take charge of the work in the territory north and east of Winnipeg. The only serious fire last year in the Winnipeg Crown Timber district occurred in the territory over which Messrs. Davis and McLeod had jurisdiction as fire-rangers, and it is therefore possible that you have already been furnished with a report by either of them. However, as one of our timber inspectors has furnished me with information relating thereto I beg to report as follows: The fire in question started on May 6 in township 40, range 26, west of the 1st meridian, close to the Canadian Northern railway, between Birch river and Novra. No rain had fallen in that part of the country for a considerable time prior to that date, and the fire therefore spread rapidly and passed through portions of townships 41 and 42, in range 26, also part of township 42, in range 25, west of the 1st meridian. On May 8 heavy rain arrested its course, and by the following day the fires were completely extinguished. It is estimated that the fire damaged from 45 to 50 million feet, board measure, of standing timber, a large portion of which is covered by timber berths Nos. 992 and 1,101. The holders of these berths are operating this winter, and a portion of the timber damaged will thus be saved. As to the cause of the fire the inspector reports: 'It may have been started by passing trains, or from the eamp-fires of trappers. I

have found no way of proving its origin.' The timber inspector further reports that he had travelled to the north end of Lake Winnipegosis, and there had been no fires in that district during the season of 1911.

In the territory north of Winnipeg, between Lake Winnipeg and Lake Manitoba, and also in the district east of the Red river, no serious fire occurred last year. This territory, as in 1910, was divided into five districts, and a fire-ranger placed in charge of each, who was kept on duty until the close of the season. I am satisfied that the absence of forest fires in this territory last year was largely due to the energetic work of the rangers. Fire notices in different languages were posted throughout the several districts, and the rangers made special effort to instruct the settlers how to prevent and handle fires.

Several small fires started during the spring along the southeastern branch of the Canadian Northern Railway, but none of these did any serious damage, with the exception of one in township 5, range 10, east of the 1st meridian, where a considerable quantity of cordwood was destroyed. This wood was covered by insurance, and the

owner paid the dues on it in full.

The fire-rangers whom I have employed seem to be unanimous in the opinion that the greatest danger from fire in this district is from the railways, and I would respectfully suggest that, in the northwest part of the province particularly, greater efforts should be made than hitherto by placing a staff of rangers along the railway through the timber area. During the season of 1911 the rights of way of the several railways within this district were kept in better condition than during the preceding year. There is, however, still room for improvement, and it would be well to impress on the railway companies the necessity of keeping the right of way clear of dry timber and other inflammable material.

Respectfully submitted,

ANDREW FREEMAN, Crown Timber Agent.

No. 20.

EXTRACT FROM LETTER FROM JAMES T. BLACKFORD.

NORWAY HOUSE, N.W.T., February 26, 1912.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa, Ont.

SIR,—I have just returned from the longest of my winter trips and herewith I

beg to submit my report of same.

I made several short trips, but these were taken more to ascertain the truth of statements made by some of the Indians in regard to the size and quantity of timber in the vicinity of Norway House. I found them very unreliable. The weather was very cold, ranging from 35 to 50 degrees below zero. On January 28 I left Norway House, taking with me Sandy Scribe (my regular man) who drove the dogs, and John Keeper as extra help, both Indians.

My objective point was Trout Lake, lying northeast from here and northwest from Oxford Lake, my proposed route then extending from Trout Lake southwest to Walker's Lake and Cross Lake and then south again to Norway House. I was unable to reach Trout Lake owing to a combination of circumstances which I will relate in

this report.

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We had some very cold days, but, taken as a whole, the weather was favourable. The first two days out we passed through spruce and poplar in various stages of growth. Fires have constantly swept over this part, and to-day small poplar and birch predominate, with some dead spruce in places. There was no merchantable timber to be seen of any description.

Crossing over the Echimanish River we passed through a muskeg country for some miles. There were some tamaracks growing in places, but often the alders grew thick and we had some difficulty getting through.

North from this muskeg a fire of some fifteen or more years ago swept over most of the country through which we passed. Not much of the killed timber is left standing, but what there is averages about seven inches in diameter at the trunk.

There are places that seem to have escaped the more recent fire and the living trees would average some eight inches in diameter. These trees seem to be about forty years old. What interested me particularly was the fact that often among these living trees were to be found some dead giant trees,—speaking comparatively as we find the timber here to-day—of the long ago. Occasionally, one such could be seen standing without bark or limb, but many can be seen in an advanced state of decomposition, stretching for one hundred and thirty feet in the undergrowth and measuring thirty-six inches in diameter at base. All over the burnt area young spruce, tamarack and pine are growing, ranging in height from a few feet to twenty and thirty feet high.

For six or seven days we passed through thousands of acres of this young growth and the thought that forced itself upon me day after day was this, that even here where the agriculturist cannot hope to do much, nature is aspiring to do great things for Canada, if only the careless miscreant can be taught to be careful and help in the

prevention of forest fires.

On some occasions,—as last winter,—I have gone for days through burnt timber without seeing any living tree and I have been pessimistic as to the future of timber in this north country.

From observations this winter, I feel that though much has been lost through devastating fires in the years that have passed, there is also much left for us to care for in the young timber that is growing up and some tracts that to-day are fair timber.

At Swan Lake I camped for several days, going out each day in different directions. One day I spent looking over the timber on the islands in Gull Lake. This was all uniformly large, from eight to twenty inches in diameter, and from 75 to 120 ft. high. The day was unfavourable for taking pictures, so next day I tried again, but when I got to Gull Lake,—which, by the way, is a large lake—there seemed to be a regular blizzard blowing. I could not see very far out on the lake so did not venture out. In the bush one could hardly notice the wind. There is some merchantable timber in fairly large quantities in the vicinity of Gull Lake.

From Gull Lake to Carrot River and north as far as we went we passed through mostly young spruce and pine of six or eight years growth. Sometimes we came to small areas of large timber and these I tried to photograph but the results were not

the best, though I trust they may be of some service.

When we were north of Carrot River and west of Oxford Lake the dogs showed signs of playing out, and as John Keeper was beginning to show a little of the Indian's ugly disposition, owing to his having to break the trail for so long, I decided to turn southwest and then to Norway House.

As we came near to Carrot River again we came into some very fair timber and this extended, more or less, for forty miles or until we reached Walker's lake.

At this latter lake we saw the first hunters' camp since leaving Norway House some seventeen days previous. There were about nine families living in three small houses and one winter teepee in this camp. The houses had no windows of any description. The only light that was admitted came through a small hole in the roof near

where the clay chimney found exit. Dark, dirty, overheated and overcrowded, these houses were the hotbeds of consumption that kills so large a percentage of these people.

I talked to these people of forest fires, but they were rather reticent of the past, saying there was enough dry wood to do them many years to come and promising to be very careful this coming summer. Around Walker's lake and the eastern portion of Cross lake there is quite a lot of very fine timber, tall and of good dimensions and keeping its size a long way up the tree. There has been comparatively little of this timber burnt in recent years.

One evening while the men were making camp, I started off alone to break the road for the next morning. I had gone about two miles when I came to a small river. I decided to break the trail across this and then return to camp. I had just got into the middle of the stream, when, without warning, the ice gave way and I went through to the waist. Having my gun in my hand I threw myself forward and the ice held. While in this position I slipped one of my snowshoes from off my foot, the other was too tight for me to release. After about ten minutes in the water I managed to get out, but from the knees down I was soaking wet. From the waist to the knees I had only got wet on the outside, not being in the water long enough for it to penetrate. With the one snowshoe under my arm I made all haste to the camp, but the soles of my feet and all my toes were frozen some. The next morning I had a large blister under each of my toes. For several days I had to travel with my feet wrapped in rabbit skins.

From Walker's lake to Cross lake, Hudson's Bay Company Post, we came across several camps of hunters, to all of whom I spoke concerning forest fires. Most of these families will not return to their respective reserves until open water.

In the immediate vicinity of Cross lake the timber is nearly all burnt, but coming on down to Pipestone lake and east from there some good timber in fair quantities is to be found. As we went, for days at a time, through country and timber of very much the same character there is no lengthy report to give.

A summary of my observations would be as follows:-

First, that there have been very large areas of fine timber (say some 75 or 100 years ago) in this north country. That considerable good timber is still to be found north and east from Pipestone lake and extending to north and east of Cross lake and Walker's lake.

Second, that, so far as I can see,—unless great climatic changes have taken place—there is no reason why (if saved from fires) ninety per cent of the timber should not attain the size and quality it undoubtedly did in the past, viz., two and three feet in diameter, and of good height.

Third, the timber is and always has been of slow growth.

Fourth, the nature of the country is such that (so far as I know) it could not be utilized for other than the production of timber.

Fifth, large areas are growing up again to spruce and pine. There are large quantities of spruce about four to six inches in diameter about fifty feet high.

Sixth, that generally speaking the Indians do not look upon forest fires with disfavour, but regard the same as the best agency in furnishing dry wood at all times in all places.

Seventh, that, while a constant patrol of the water routes will do much to minimize the danger of forest fires, there is so great a mileage to be covered that the only hope of saving our forests here, is in the education of the Indians,—who most frequent these routes in summer time—to see what it means for them especially and the country in general to prevent such fires.

I would like to have had more time around Walker's lake, but we were without

dog feed and I could purchase only a few fish from the trappers.

Before getting to Norway House, the dogs took sick and with an Indian hitched on ahead of the dogs and the other pushing we had some difficulty in reaching here. I 25—vi—61

am sending, under separate cover, a rough map of the route taken and district covered and the result of my work during the trip. I trust this will be of service to you and the department.

All of which I respectfully submit.

JAMES T. BLACKFORD, Chief Fire Ranger.

No. 21.

REPORT OF P. Z. CAVERHILL.

DEPARTMENT OF THE INTERIOR,
FORESTRY BRANCH,
CALGARY, ALBERTA, April 1, 1912.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa.

SIR,—I beg to submit the following brief report on the work done by me, for the Forestry Branch, during the year ending March 31, 1912, acting under your instructions of February 21, 1911, to inspect the lines of railway passing through timbered lands and ascertain from personal observation and from the reports of the rangers whether the requirements of the Railway Act in regard to keeping the right of way free from inflammable material and the regulations of the Railway Commissioners and Provincial Statutes regarding fire-guards were being properly carried out.

Leaving Ottawa on March 4, I proceeded to Winnipeg, thence via Hudson Bay Junction, Melfort and Prince Albert to Edmonton, consulting with the rangers and lumbermen en route. At this time there were from two to three feet of snow along

the railway and I could not gain much by personal observation.

Reaching Edmonton on March 17, I made a trip of inspection in company with Mr. McLaggan, the Chief Fire Ranger, of the right of way of the Grand Trunk Pacific

Railway as far west as Jasper Lake.

During April I was engaged in organizing a patrol along the lines of the Canadian Northern Brazeau Branch and the Alberta Central west of Red Deer. Having made arrangements for the patrol, acting under special instructions from the Director, I made arrangements for starting a reconnaissance party under charge of E. G. McDougall, on a survey of the Porcupine Hills. This, in addition to assisting Mr. McLaggan in making a report on the fire patrol in the Edmonton district, occupied all my time in May.

Again acting under special instructions from you. I, on June 5, left Edmonton for Prince Albert and Mafeking, and the following five weeks were spent at Prince Albert, Melfort, Dauphin and along the line of the Canadian Northern Railway studying and reporting on the fires which had occurred between these points early in May. These fires were very destructive, burning in the Prince Albert District approximately 1,000 square miles, containing 200,000,000 to 300,000,000 feet of timber and unlimited quantities of wood and young growth. Part of the tract has a good loam soil and will be needed in the next few years to meet the demand of settlers, but much of it is sandy and cannot be brought under profitable cultivation. It was here that the greater loss was encountered owing to the destruction of the young growth on which we must

depend for our future timber-supply. This fire was caused by settlers setting out fire late in April when the surface was very dry. High winds arising drove the fires beyond control and several fires uniting caused the great damage.

At Mafeking and Baden, Manitoba, about thirty-five square miles were burned, containing 60,000,000 feet, board measure, and for some hours the property and lives of the inhabitants of the two villages were in danger of destruction, being preserved

only by a change of the wind.

After completing the trip I made an inspection of the Canadian Northern Railway and Alberta Central Railway rights of way west of Red Deer; and on August 4, acting under your instructions, I reported to A. Helmer at Calgary and worked under

his instructions for the remainder of the year.

In dealing with railway fires, the great essential is a clean right of way. If the right of way has been properly cleaned at the time of construction a great step has been gained, but all brush, grass, weeds, etc., should be cleaned off once a year, preferably as soon as the grass matures in the fall. If the humid conditions are equal, the danger from railway fires is directly proportional to the weight of the ignited matter falling upon it. It has been demonstrated at Purdue University that under ordinary atmospheric conditions the greatest amount of sparks fall between thirty-five and one hundred feet from the centre of the track, and that ninety-five per cent of all railway fires originate within one hundred feet of the track. The 100-ft. right of way, therefore, is not enough for protection but an additional fifty feet on each side should be cleaned, not necessarily of green timber, but of all underbrush and dry surface matter. On the upper side of sidehill cuts a greater distance would have to be cleaned and a ground line constructed along the far side. The cost of the first cleaning would perhaps amount to from \$400 to \$500 per mile for the brush cleaning, and upkeep from \$50 to \$75 per year, becoming less each year. If the right of way is properly cleared and guarded a patrol is almost unnecessary except in very dangerous periods and on steep grades; but in order for a patrol to be effective it should cover the entire right of way at least twice each day. When equipped with a speeder a patrolman can travel ten miles per hour and should not be required to cover more than thirty-five miles of track. Special watchmen should be stationed on all steep grades and other especially dangerous points.

Respectfully submitted.

P. Z. CAVERHILL, Forest Assistant.

No. 22.

REPORT OF H. CLAUGHTON-WALLIN.

VANCOUVER, B.C., April 1, 1912.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa.

SIR,—I beg to submit herewith my report for the fiscal year ending March 31, 1912.

Field-work was carried on continually from the commencement of the fiscal year to the end of October. From November 1 to this date occasional outside work has been done, but the most of the time has been spent in office-work, such as writing of reports, mapping and compiling of stem-analysis data.

The number of my assistants varied from one during the winter to seven during the business part of the summer. Mr. H. C. Kinghorn has been my permanent assistant from June 9 to the present time.

The work carried on in the coast district of the Railway Belt may be divided under

the following headings:-

- a. Examination of unsurveyed lines of timber berths.
- b. Forest surveys.
- c. Stem-analysis work.

· EXAMINATION OF UNSURVEYED LINES OF TIMBER BERTHS.

The object of this work, which was begun during 1910, was to ascertain whether or not certain incompleted boundary lines, stated by the surveyor to be inaccessible, could be completed, and whether it would be necessary to survey such unsurveyed portions which were found to be inaccessible.

The unsurveyed boundaries of seventy-five timber berths were examined during the year. In most cases it was found that the uncompleted surveys were on rough, rocky and sometimes inaccessible mountains, where there was little or no merchantable timber immediately outside the berth.

FOREST SURVEYS.

In accordance with your instructions a forest survey was made of the district surrounding Anderson river and its tributaries.

The Anderson river, which has its head-waters on the high mountains in township 7, range 24, west of the 6th meridian, empties into the Fraser river about three miles south of North Bend, and is one of the largest tributaries to the Fraser in the coast district, being about twenty-five miles long and, on an average, forty feet wide and one and a half feet deep during low water. It is bordered on both sides by rather steep mountains reaching a height of from 4,000 to 7,000 feet. The river is quite swift, running through many narrow canyons, some of them with nearly perpendicular walls several hundred feet high. Except for the last three or four miles of its course the Anderson river runs more or less parallel with the Fraser, being separated from the latter river by a high range of mountains.

The Anderson River district is unsurveyed, and it was necessary to find a known point to which to tie our valuation survey. A mining claim post fixed by a previous survey and situated at the fork of Siwash creek near the southwest corner of section 2, township 7, range 25, west of the 6th meridian, was chosen. With this post as a point of commencement, a point in the Anderson river situated in the southeast quarter of section 15, township 18, range 25, was established by traverse. Such traverses of the river and the main tributaries as were found necessary for the establishment of

points of reference and a proper system of estimating were then run.

The strip-survey method of estimating was used.

The traverse line along the river was used as a base-line, and strips one chain wide and twenty chains apart were run at right angles to the direction of the river. All merchantable trees of a diameter at breast-height (4½ ft.) of ten inches or more on those strips, or sample areas, were calipered and the diameter at breast-height and merchantable length of each tree recorded.

Thus five per cent of the total timbered area was actually covered by the estimate. Notes on typography and on the general character of the forest and the land were made for each acre calipered, and boundaries of different types and stands were marked on sectional maps in the field note-books. Elevations were taken with aneroid barometers for the making of contour maps.

As the land along the lower course of the river had been repeatedly burned over, leaving the country practically devoid of merchantable timber, only a rough estimate and maps were prepared for this area, while a careful examination was made of the well timbered country in townships 8 and 9, range 25.

The work was delayed considerably on account of heavy rains, especially during the month of September. The rough character of the country also delayed the work,

as the area which could be covered in a day's work was not very large.

GROWTH.

The list of tree species growing in the district is large. The following conifer species were found:—

Douglas fir (Pseudotsuga mucronata).

Hemlock (Tsuga heterophylla).

Mountain hemlock (Tsuga Mertensiana)

Red cedar (Thuja plicata).

Sitka spruce (Picea sitchensis).

White pine (Pinus monticola).

Jackpine (Pinus contorta).

Amabilis fir (Abies amabilis).

Balsam fir (Abies lasiocarpa).

Yellow cypress (Chamaecyparis nootkaensis).

Yew (Taxus previfolia).

Dwarf juniper (Juniperus communis).

Alders and poplars are common along the river bottom and vine and dwarf maple form the undergrowth on the slopes.

In relation to the distribution of the different species the Anderson River valley could be divided into the following districts:—

Upper District-Township 7, Range 24.

Altitude along river, 3,300 to 4,000 ft.

Principal species: Western hemlock, Amabilis fir, Balsam fir, Mountain hemlock.

Upper Central District—Township 8, Range 25.

Altitude along river, 2,000 to 3,300 ft.

Principal species: Douglas fir, Cedar, Western hemlock.

Scattered species: White pine, Sitka spruce, Amabilis fir, Jackpine.

Lower Central District—North half Township 9. Range 25.

Altitude along river, 1,400 to 2,000 ft.

Principal species: Douglas fir, Cedar, Hemlock.

Scattered species: White pine.

Lower District—South half Township 9, Range 25, and Township 10, Range 25.
Altitude along river, 300 to 1,400 ft.

Principal species: Douglas fir.

Scattered species: Cedar, with an occasional Hemlock or White pine.

The reproduction on the burns consists principally of Douglas fir, jackpine and some white pine.

Fires.

The old Hudson's Bay trails from Boston Bar and Spuzzum to the Coldwater country go through this district and practically the whole of township 10, range 25, has been burned over, the fires probably originating from the trails. There are tracts covered with poles and young reproduction, but in the main the forest cover is far

from satisfactory. The country has now a patchy appearance, there being bunches of green timber, blocks of reproduction, grassy areas and bare slides all intermixed.

The north part of township 9, range 25, has also been damaged by forest fires but the remaining part of this township as well as township 8, range 25, has been comparatively free from this enemy of the forests.

Stem analysis work.

With the object of obtaining data for the construction of growth and volume tables, stem-analysis work was carried on by two student assistants in the coast district during June and July. Three logging operations were followed, viz:—

- 1.—Timberland, Lumberland Lumber Co's operation at Craig's Spur, six miles southwest of New Westminster.
- 2.—E. H. Heaps' logging operation at Ruskin.
- 3.—Rat Portage Lumber Co's operation on the west shore of Harrison Lake just outside of the Dominion Railway Belt on provincial land.

Particular attention was given to Douglas fir.

The following tables based on volume and growth measurements by decades have been prepared:—

- 1.—Table giving average thickness of bark at different heights of Douglas fir in the coast district. (Based on 175 trees.)
- 2.—Table showing average thickness of bark of Doug'as fir at different diameters breast-high, outside bark, in the coast district. (Based on 175 trees.)
- 3.—Table showing average thickness of bark of Douglas fir at different diameters breast-high, inside bark, in the coast district. (Based on 175 trees.)
- 4.—Table showing average heights of Douglas fir at different diameters breasthigh, outside bark, in the coast district. Based on 160 trees (by decade measurements 1,460 trees).
- 5.—Volume table for Douglas fir in Coast forests, showing diameter at breast-height, merchantable length (16-foot logs), and available merchantable contents in board feet by the B. C. official log scale. Based on 160 trees (by decade measurements 1,323 trees).

The actual number of felled trees on which the measurements were taken may seem small, but the data obtained by the measurements of tree-sizes at the end of ten-year periods should be very valuable, e en if not entirely equivalent to the measurements of the same number of individual trees.

The trees from which data were secured were growing on soil of good or fairly good quality in well stocked mixed-conifer stands. The tables should prove useful in stands of similar character.

The extremely rapid growth of Douglas fir under favourable conditions is astonishing. At Craig's Epur the stand is even-ag. d, a large fire having swept over this country 172 years ago, and consists of Douglas fir and cedar with associated hemlock and Sitka spruce. The stand is fully stocked but not over crowded. The soil is a well-matured, deep loam.

The rapid growth, in this particular locality, of Douglas fir is shown by the following age-diameter at breast-height and age-height table, based on decade measurements of seventy Douglas fir:—

(Ave. D.B.H. Q.B. 44.8" Ave. D.B.H. I.B. 39.3" Ave. Tot. Height, 199' Ave. Tot. Age, 160 years.)

Age.	Average Diameter at Breast-height.	Average Annual Growth in each Decade.	Average Total Height.	Average Annual Height—Growth in each Decade.
Years.	Inches.	Inches.	Feet.	Feet.
10	1.6		6	
20	5.6	0.40	30	2.4
30	10 7	0.21	59	2.9
40	15 0	0.43	82	2.3
50	18.9	0.39	101	1.9
('0	22.0	0.31	1!8	1.7
70	21.8	0.28	134	1 6
80	27.5	0.27	146	1.2
90	30:0	0.25	157	1.1
1/ 0	32 4	0.24	166	0.9
110	34 6	0:22	174	0.8
120	36.8	0.22	181	0.6
130	39:0	0.22	187	0.6
140	41.2	0.22	193	0.6
150	, 43:2	0.20	198	0.5
160 170	45·2 47·0	0:20 0:18	$\frac{203}{207}$	0·5 0·4

At Ruskin and Harrison lake the stands when the analyses were taken are manyaged, and the trees examined had been growing under such variable conditions that to construct age-height and age-diameter tables from the data secured would hardly be worth attempting. Instead, tables showing the average rate of growth of Douglas fir of different sizes will be prepared.

In both places the stand is a many-aged, well-stocked virgin and mature conifer stand, consisting of approximately sixty per cent Douglas fir and forty per cent red cedar, hemlock and white pine growing on a fairly deep sandy-gravelly soil, mixed with granite boulders.

The data compiled at the Harrison lake operation indicate that the following figures for diameter at breast-height and height growth of dominant and co-dominant Douglas fir in that locality are fairly good averages:—

- At 80 years the diameter at breast-height is 24 in, and the total height 120 feet.
- At 160 years the diameter at breast-height is 36 in. and the total height 175 feet.
- At 240 years the diameter at breast-height is 43 in. and the total height 190 feet.

While not as rapid as at Craig's Spur, this growth must be considered very good. It is to be remembered, however, that these figures are averages of the growth of the best trees only. It is probable that at least this average growth can be attained under proper management in this and other localities of a similar character on the coast.

The logging operation followed at Harrison lake is in a fairly representative Douglas fir type.

The investigations which have so far been carried on amongst the Douglas fir in the Coast District show:—

- (1) that Douglas fir prefers a well watered, deep, loamy soil, but that it does well also on poorer soils, provided there is abundant atmospheric moisture. It does not thrive on saturated and poorly drained soils;
 - (2) that Douglas fir reaches its best development in even-aged stands where it

can get sufficient overhead light;

- (3) that Douglas fir is a prolific seeder, spreading its light, winged seeds for a considerable distance, but that it has great difficulty to gain a hold on the logged-over areas, covered with debris, which are, instead, generally restocked by cedar and hemlock which are tolerant of shade. Exposed mineral soil and direct light are necessary for Douglas fir seedlings. That is the reason why Douglas fir generally restocks the burns on the coast. To secure satisfactory reproduction—natural or artificial—after logging, it will, in nearly every case, be necessary to burn the debris.
- (4) that as Douglas fir is on the coast a very rapidly growing tree, the rotation, even if fairly large saw material is desired, would be comparatively short. For the sake of comparison, I may mention that in certain parts of Northern Europe where the timber industry is the chief asset of the country, it takes from one hundred to one hundred and eighty years to grow a stand of Scots pine of an average diameter of twelve inches, while in the Coast District of British Columbia a stand of Douglas fir of the same average diameter can be produced in thirty to forty years. It must be remembered, however, that the best grades of lumber can be obtained only from old trees.
- (5) that fungi and insects do very little damage to Douglas fir which are not overmature.

A volume table for Douglas fir based upon total height is now under preparation, as are also growth tables.

Stem-analyses were also taken on cedar and spruce, but the number of trees examined is much too small to enable me to construct any volume or growth tables for those species.

Respectfully submitted,

H. CLAUGHTON-WALLIN,
Forest Assistant.

No. 23.

REPORT OF G. H. EDGECOMBE.

OFFICE OF THE COMMISSIONER OF DOMINION PARKS, EDMONTON, ALBERTA, March 30, 1912.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa.

SIR,—Under your instructions of the 12th instant, I am submitting my annual report of the past year, which has been spent on that part of the Rocky Mountain Forest Reserve now designated as the Brazeau and Athabaska Forest Reserves.

The chief work of the year was the continuation of the eastern boundary of the Rocky Mountain Forest Reserve from the 11th base line, at section 32, township 40, range 12, west of the 5th meridian, norwesterly to the 15th base line, at section 33, township 56, range 25, west of the 5th meridian.

Leaving Ottawa on April 3rd, I spent the next month in outfitting for two parties and getting in supplies at various points, also in going over the country around Prairie Creek, where it was decided that work would be started.

On May 8th, the two parties that were to carry on the work started at Prairie Creek on the Grand Trunk Pacific Railway and Athabaska River, one working southerly, the other northerly under the leadership of Mr. S. H. Clark and Mr. E. H. Finlayson, respectively. The work of the whole summer was delayed by excessive rains. The months of May and June I divided between two parties, while July and the latter part of September to December I spent with the southern party. August and the first part of September were spent with the northern party. As the student assistants were obliged to return to college in September and the first part of October, the northern party was disbanded October 7, but the work of the southern party was continued on into November, when the party crossed country from the little Brazeau to Bickerdike (on Grand Trunk Pacific Railway), where it broke up December 12. On December 20, I went to Edmonton, where, during the next month, I prepared a report and maps on the summer's work.

As the object of the reserve is to furnish a supply of wood to the prairies and coal mines and protection to the watershed, you will notice by the previous report that the proposed boundary practically includes the coal district and, as far as practicable, the true woodland, wherever possible natural boundaries, such as rivers, being chosen.

The country is one abounding in muskeg and wind-fall, the latter the result of fires twenty-five to forty-five years ago. It is more rough and broken than that to the east, increasing in height and steepness of slopes as the first range of mountains is attained, these standing abruptly above the foothills. The rivers flow in a general direction northeasterly, the Baptiste, Little, South and North Brazeau flowing into the North Saskatchewan, while the Pembina, Embarras, McLeod and Hay rivers flow into the Athabaska.

The factors defining the boundary were, as in the previous year's work, (1) topography, (2) soil, (3) climate, (4) elevation and (5) timber.

- (1) Topography.—In a general classification, the hills, 250 to 500 feet above the valleys, conform to the trend of the rivers, along which alternate steep 'cut-banks' and small hay and timber flats. Back from the rivers are a series of steep terraces and muskegs until the height of land is reached, then a similar descent to the next river. In districts, as at the Pembina River, many deep ravines cut into the hills. Thusthere are no large consecutive areas of arable land that will be desired in the near future for farming.
- (2) Soil.—The soil of the river bottoms is a sandy loam, fairly deep and underlaid with gravel. The soil of the upper slopes becomes light. Rocky exposures are common, while all through the district there are large areas where the humus has been burnt off by repeated fires. In the muskegs the top soil or decayed humus varies from fifteen inches to four feet.
- (3) Climate.—Throughout the summer frosts were encountered almost weekly. Rain this year was excessive, while snow (ten inches) fell on September 20, but soon disappeared; snow came to stay, however, on October 24.
- (4) Elevation.—An elevation of 4,000 feet was mostly followed but, on account of excessive muskeg or the nature of the country, this elevation was in districts lowered to 3,800 feet.
- (5) Timber.—The following is a tabulated statement of the tree growth throughout the district through which the boundary was run, and it may be taken as a fair average of the reserve east of the first range of mountains, west of which bare limestone ridges will form a large percentage of the area.

Timber	11%
Muskeg	11%
Poplar and willow	24%
Pine and spruce, pole size and under	
Grazing	40%

FIRE PROTECTION.

To cope with the fires, the fire protection is a most serious, indeed the all-important question. While the plans for the coming year include a telephone system to be put in and direct trails and fire-guards to be cut out, the remoteness of districts from ready assistance has to be contended with, as everywhere the ground is strewn with dense wind-fall, which, when a fire occurs, it is next to impossible, especially for a small number of men, to control. Until the present plans can be carried out, with the country thus divided up, the protection is at a disadvantage, but with attention and co-operation in those districts where railways are being constructed, coal mines developed and trails frequented, it is hoped that success will be gained.

During the coming year the Coal branch of the Grand Trunk Pacific Railway will be completed to the Mountain Park Coal Company's mines at the head of the McLeod river, also to the Yellowhead Coal and Coke Company on the Embarras river and to the Pacific Pass Coal Company's mine on the Pembina. In the south the Canadian Northern Railway will be constructed to the Brazeau Coal Company's mines a few miles west of the Mire Creek Gap in the first range of mountains.

The above mines are developing their claims preparatory to the railways reaching them.

Under your instructions of May 10, the last ten days of June were spent in estimating the tie supply between the west and main forks of the McLeod river and north of the 13th base line.

Contrary to the reputed stories that this district is covered by virgin timber, out of the twenty-six and three-quarters square miles (17.120 ac.), 24.1 per cent bears merchantable spruce and pine, 25.5 per cent is muskeg, 49.1 per cent of young pine and dense wind-fall, the result of fire, and 1.3 per cent of open grazing land. It was decided that this timber could be more economically used as mine material, thus avoiding the excessive waste in cutting ties.

From September 20 to October 3, I took a trip to the Kootenay Plain district on the North Saskatchewan river.

West of the Saskatchewan River Gap, particularly on the south exposures, there extends a good grazing country. About ten miles west of the The Gap several squatters are located because of this grazing.

The Kootenay Plains extend west from the Whitegoat river for about fifteen miles. They are flats a quarter of a mile to one mile wide, alternating on both sides of the Saskatchewan. Back from these plains extend the Brazeau mountains. Last fall, this district appeared to have been overstocked, as the grass was very sparse and light. Here, besides the Indians, there is a squatter located. Besides having a large area fenced in, he has several well built houses. The Indians are from the Stony Indian Reserve and come to the plains because of the game as well as for the grazing.

In February a tract on the Stony river, just north of the Jasper Park boundary, was examined in regard to its tie supply. This district is 'mountainous, the soil is light, the district having been fire-swept twenty-five and forty years ago, though a few small areas of merchantable spruce and pine escaped the fires. As it was evident that the timber was desirable for protection of the water-shed and for reproduction purposes, it was recommended that the timber should not be cut at the present time. Again, it is likely that there would be difficulty in driving Stony river, as it is mean-

dering, subject to floods, and, at low water, gravel-bars and boulders would add to the difficulties.

The last of February and the first week of March were spent going over areas affected by the Mountain Park Coal Company's applications for surface rights for the development of their mine, and timber and land desired for agricultural purposes, as directed in your instructions of February 10.

As regards the surface rights, 165 acres of open land along the McLeod river and at an elevation of 5,800 to 5,900 feet was defined that would be desirable for a town-site and for the operation of Collicry No. 1, and would overlie the underground rights

of coal leases Nos. 334 and 335.

The timber on the surface of coal leases Nos. 334 and 335 is the alpine type of spruce and pine. It is of poor quality as regards saw material, because of its rapid taper and persistent branches. It was estimated that on these leases there is enough mine material to supply the mines for twenty years at an output of 50,000 tons of coal per month.

Concerning the land required for agricultural purposes, 340 acres in sections 5, 8 and 17, township 47, range 24, locally known as Greasebone Flats was gone over. The elevation of this flat is 5,400 feet, 80 acres of which at the south end is covered by wind-fall and jackpine reproduction. If the remainder, 260 acres, were broken and seeded to grass, there is no doubt but that a good return could be had. The timber on this flat occurs in small groves of spruce, likely amounting to about 12,000 feet, board-measure, of lumber.

As a tie permit had been applied for on a tract west of the Grand Trunk Pacific Railway, under construction to the Mountain Park Coal Co.'s mines, between stations 285 to 338, I went over this, finding that some construction timber has been taken out. The timber is of spruce of the river-bottom and lower-slope type. Immediately west of this flat is a mountain, the upper slopes of which are composed of bare limestone.

On this tract, between the above stations but west of the McLeod river to the base of the mountain, about 45,000 ties could be cut out without detriment to the district, as most of the timber is overmature.

On March 12th, I left Edmonton to go over the Canadian Northern Railway's

right of way west of Rocky Mountain House, returning here March 23rd.

Most of the right of way to the Brazeau Mines has been fairly well cleared up. West of Mire Creek Gap the right of way has been cleared to Brazeau River, but this line is to be revised. It is not likely that construction will be carried on here this season.

Some attempt was made to pile the brush where construction timber has been taken out, but on the whole, this is rather unsatisfactory, as there is considerable merchantable timber fit for ties that has been left.

The requirements of the Brazeau Collieries for timber and a townsite have been left off till May, when they will make definite application for what areas they require of timber and for their operations.

Respectfully submitted,

G. H. EDGECOMBE,
Forest Assistant.

No. 24.

REPORT OF E. G. McDOUGALL ON PORCUPINE HILLS, ALTA.

DEPARTMENT OF THE INTERIOR,
FORESTRY BRANCH,
OTTAWA, September 3, 1912.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa.

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Sir,—I beg to submit the following report on the work which I have carried on under your instructions in the Porcupine Hills, Alberta, during the past summer.

THE SURVEY.

Objects.—The primary object of the survey was the location of the boundaries of the land in this region suitable for forest reserve purposes; the secondary object, an examination of the land recommended for reservation, to determine the quantity and quality of the timber, the best means of protecting it from fire, and other questions bearing on the administration of the forest reserve. This purpose involved the preparation of topographical and type maps of the reserve area.

Time in Surveying District.—The party, seven all told, left Claresholm on the

26th of May, and returned there the 23rd day of August.

Much of the month of June was spent in getting accustomed to the work. By the end of that month, seventy-six sections of land had been mapped, and nineteen and one-half miles of boundary were located. In July, with much worse weather conditions, one hundred and thirty sections were mapped and forty miles of boundary located. Early in August I received instructions to proceed as soon as possible to Prince Albert in order to make an examination of a tract in that locality. Accordingly, it was necessary to discontinue the mapping and make haste to complete the boundary; on the 22nd of August, the remaining fifty miles of boundary were completed.

Methods of Survey.—I was instructed to include within the reserve, as far as possible, all lands above 4,000 feet in elevation which had not already passed into private hands. The boundary, in fact, was largely determined by the position of the private holdings above this elevation. Homesteads and other patented lands were left out whenever this course seemed at all practicable. Where homesteads had to be included within the reserve, we obtained full information regarding the residence and improvements of each homesteader, and reported thereon.

At Mr. Caverhill's suggestion, boundary stakes were planted at intervals of half a mile; they were cut from spruce, pine or Douglas fir saplings, about three inches in diameter and three feet long; they were peeled, squared and marked 'D.F.R.' on the

outer face.

In mapping, it was our practice for two men to go together, following surveyed lines where these could be traced, and sketching the country half a mile on each side of the line. Distances were measured by pacing, and elevations by means of the aneroid. Contours were sketched in at intervals of 500 feet. A complete description of each section visited was written on the forms provided. Small patches of timber were tallied by means of quarter-acre circular plots. When a large stand was located, the whole party would take a day to cruise it by the strip method.

THE PORCUPINE HILLS, NATURAL FEATURES.

Topography.—The Porcupine Hills are an outlying ridge, parallel to the Livingstone range, from which tney are separated by a deep synclical valley, (hereafter referred to as 'the valley'), open at both ends, and drained northwards by Willow Creek and southward by Callum Creek, which joins the North Fork of the Oldman river. The main divide of the Porcupine runs from about section 25, township 13, range 2, west of the 5th meridian, to about the south end of township 9, range 30, west of the 4th meridian. Long spurs run eastward from the main ridge, dividing the coulées of the Willow, Lynden, Trout, Burton, Burke, Muddypound, Kyiskap and Beaver Creeks. On the west of the ridge, the streams tributary to Willow and Callum Creeks are smaller; the erosion has consequently been less, and the spurs are shorter.

West of the valley arises a series of three steep and parallel ridges. The middle and highest of the three, sometimes called the Lloyd range, is about as high as the main Porcupine range, and is continuous from Willow creek to the North Fork of the Oldman river; the other two are lower, and broken by gaps. Behind these ridges rises the lofty Livingstone range.

The ridges throughout the region are usually quite steep; the valleys, however, are broad and flat, and the lower slopes gentle.

Rock and soil.—The rock formation is a medium fine-grained cretaceous sandstone, almost destitute of fossils. Towards the foot of the Livingstone range, the formation changes, and indications of coal are sometimes met with. Occasionally, in the Porcupine range, igneous boulders, granites, syenites, &c., are met with, apparently having been transported by glaciers from the neighbourhood of the Churchill river.

The prevailing type of soil in the hills is a light, rather sandy clay. Rock outcrops are not extensive. Gravels are only found in the beds of the larger streams.

Climate.—The climate of the Porcupine Hills is characterized by such extreme variability that the inhabitants sometimes deny its very existence. The summer of 1910 was so dry that many large streams ceased flowing; and that of 1911 was decidedly the reverse. Nevertheless, we were often told that the streams had not yet regained thir normal level, from which it would appear that the ground had dried to a great depth. 'Chinook' winds break up the winter, and snow persists only in the shade of the trees. Snowstorms, however, have been known to occur in every month except July; and severe frosts may be expected any night in the year.

Fires.—The season of greatest fire-danger is in the fall, when the dry grass and high western winds make a dangerous combination. The great fire of 1910, whose ravages are apparent from a glance at the map, took place, however, in the spring before the frost was out of the ground.

There is every reason to believe that, with the assistance of the frequent grass fires, the prairie has been gaining on the forest for a long period; and that, unless the fires can be effectually checked, the day is not far distant when the forest cover will have vanished completely from the Porcupine Hills.

Grass and scrub.—Grass is everywhere abundant, and in some of the coulees is so luxuriant that it may be cut for hay. Unfortunately, it is by no means free from poisonous weeds. In the autumn it cures, and from thenceforth constitutes a menace, which may be greatly reduced by judicious grazing. The settlers state that grass fires are decidedly injurious to the range.

Young growths of aspen poplar, together with willow bush, form dense clumps of brush, widely distributed over the grass-lands. Since they serve the stock for shelter, they are not without value.

Tree growth.—The principal trees of the Porcupine Hills are the following:—

Douglas fir, Pseudotsuga mucronata, Sudw.

Engelmann spruce, Picea Engelmanni, Engelm.

White spruce, Picea canadensis, B.S. & P.

Lodgepole pine, Pinus Murrayana, Engelm.

Limber pine, Pinus tlexilis, James.

In addition, there are aspen (*Populus tremuloides*) (widely distributed, but rarely large enough to be classed as a tree), balsam popular and cottonwood (*Populus balsamifera* and *Populus acuminata*), both rare and confined to the banks of streams at the lower levels.

The Douglas fir is the chief timber tree. Its thick bark has saved it from the grass fires which destroyed its associates; and it survives in extensive parks, sometimes closely enough spaced to be classed as timber, 2,000 to 5,000 feet per acre. In these positions its form is naturally very poor, low and limby, and it may generally be counted on to be unsound at the butt. Where it grows scattered, it may be kept as a seed-tree, since it is fit for little else.

In the denser stands, both of poles and timber, spruce and lodgepole pine almost equal the Douglas fir in importance. White and Engelmann spruce are intermixed in, approximately, equal proportions, and are very similar in site requirements and habits of growth. Lodgepole pine attains a diameter of 18 to 24 inches, and a height of 70 to 90 feet.

The limber pine, small and crooked, occurs on all the high rocky ridges, and, like the aspen, is of little use except for fuel and as a slight protection to the soil.

On the whole, a very small proportion of the country enjoys an effective forest cover; much that has been mapped as timber is so open that its influence on soil-moisture and stream-erosion cannot be very great.

Fish and game.—The streams arising in the Porcupine Hills were formerly well stocked with trout, but the dry summer of 1910 reduced their number considerably. Grouse and prairie chicken are plentiful everywhere, but the large mammals were rare; a few deer and bear were seen by members of the party. Tracks of timber wolves were not infrequent in the remoter parts; and coyotes were fairly plentiful. Elk antlers and buffalo skulls were frequently seen, but the range cow has long since replaced these animals.

ECONOMIC CONDITIONS.

Communications.—Trails have been constructed by settlers, and others by sawmill owners with a certain amount of care; but for the most part the hill trails are simply travelled wagon-tracks, meandering about in search of the easiest passage. The ridges divide the country sharply, and only the older settlers know much of local geography 'on the other side of the hill.' One of the hill trails, from Burton's to Playle's, is much used; for the other roads leading out of the valley cross streams which are sometimes impassable. Unfortunately, the grade is too steep to permit the removal of much lumber by this route at present. Improvement of the road would be possible but costly.

Irrigation.—Irrigation ditches have been constructed in many of the valleys, often, apparently, for the purpose of acquiring title to land, but sometimes, on the lower levels, for actual use in assisting cultivation. Above the level at which grain can be successfully ripened, there would seem to be little reason for official encouragement of irrigation, which merely diverts water that might be more profitably employed lower down.

There is a marked difference in the flow of streams from wooded and grassy valleys of similar size. The dryness of the grassy valleys may be attributed in part to factors of exposure, depth of soil, etc., and considered as a cause rather than an effect

of the absence of forest cover; but such an explanation is not entirely satisfactory, and the facts, if they do not conclusively prove the importance of forest influence on stream flow, at least establish a presumption in its favour so strong as to amount practically to certainty.

Agriculture.—Owing to the frequency of summer frosts in this region, grain cannot be ripened with any certainty at a greater altitude than 4,000, or, at most 4,200 feet. Above this level, where the slopes are not too steep, the settlers raise hay and green feed for the stock, and cultivate the hardier vegetables.

Grazing.—Stock-raising is the chief industry in the immediate vicinity of the Porcupine Hills. Formerly, large ranchers occupied most of the country and some of the choicer parts are still in their possession. More recently, however, the homesteaders have made a place for themselves, in the teeth of the sharpest opposition. It may be generally asserted that, once established, they have quickly become as keen as their predecessors to exclude newcomers and remove neighbours by any means in their power. The local atmosphere of bitterness and jealousy astonished all of us; but the reasons for it are not far to seek. In order to maintain a familation moderate comfort, a man requires at least one hundred and twenty head of stock and hence he needs the unrestricted use of about six sections of range. The homesteaders, however, seldom have so many cattle to start with, and cannot lease so much land; hence, they have no assurance of room for future expansion, and see themselves threatened with permanent pauperism. Under the circumstances, it is not altogether surprising that every man's hand is against his neighbour, and that accusations of theft, cattle-poisoning, and malicious incendiarism are heard on all sides.

Most of the smaller owners have located their homesteads in or near the mouth of a coulée in which they run their stock. Those who have taken the precaution of leasing the coulée have had no reason to regret it. Close neighbourhood among these people makes inevitably for trouble.

Lumbering and wood-cutting.—Lumbering operations have contributed largely to the deforestation of the Porcupine Hills. Abandoned mill-sites were seen in most of the coulees. The largest mill, in Beaver Creek valley, long supplied the town of Macleod with lumber; it is now a ruin and the slash is burned over.

A mill on Burton creek is still in operation, and settlers come to it for their lumber from a considerable distance. It may be safely stated that the merchantable timber on the eastern side of the hills is rapidly nearing the point of complete exhaustion. The large stands on the western slope are, as already intimated, practically inaccessible to dwellers on the east; moreover, certain contingencies, such as the construction of a railroad through the valley and the subdivision of the Waldron ranch, might quite possibly create an adequate market for lumber on the west side of the range.

Many farmers and townspeople from the prairie drive to the Porcupine Hills for the purpose of cutting wood for domestic use. They have been taking both green and dry timber, and have paid no dues on either. The supply of fire-killed timber alone should be equal to the demand for the next decade.

Recreation.—On account of their ready accessibility from a productive farming country, their natural beauty and their supply of fish and game, the Porcupine Hills are already a favourite resort of pleasure-seekers. In the future, with the increase of population, their value in this respect will be greatly enhanced, always provided that the forest cover can be maintained and extended. Without it, the hills would lose their attractiveness, and both fish and game would soon disappear.

RECOMMENDATIONS.

Roads and trails.—A complete set of trails, connecting lookout points, following the ridges where possible, and (no slight advantage) enabling the patrol to watch the country with his field-glasses without being seen, is projected by the ranger, who has

already constructed several sections. Where the trails thread grassy valleys, they could be first ploughed as fire-guards, after which a diligent patrol would keep them well beaten. On the ridges and in the timber the trails would soon be well-worn, and could be used, in an emergency, as lines from which to back-fire.

The need of a good wagon road crossing the main ridge has already been mentioned. By improving the valley trails and bridging Willow creek or Oldman river, the same end might be gained, perhaps with less expense.

Fire-guards.—Ploughed fire-guards are the most satisfactory, and, for the most part, there is enough open ground to permit of their construction. It will be necessary, in some cases, to run them across privately owned land. A great deal of hill-ploughing and some brush-cutting will be called for, so that the expense and labour will be very considerable, even if only single furrows are used. The ranger should be allowed such assistance as he requires for the construction and maintenance of a system of fire-guards (of which the well-travelled trails should form an integral part) surrounding and intersecting the whole reserve.

Grazing regulations.—From what has been said regarding the grazing situation, it is plain that very close supervision of the range is absolutely necessary. The larger owners have more cattle than the reserve can accommodate, and by the statutes of Alberta they are not bound to fence or restrain them. The smaller owners fear that the extinction of their leases and the removal of their fences would be followed by an invasion of their pastures by trespassing herds. The ranger's only remedy, when he finds trespassing cattle, unless he can detect the herdsmen in the act of bringing them in, is to put them off, though, to be sure, he is under no obligation to put them off on the owner's-side of the range.

A three-strand barbed-wire fence, such as the Alberta statutes call for, would cost at least \$100 per mile, or, say, \$10,000 to enclose the whole reserve. Without such a fence, a single ranger, watching about thirty brands, would find it almost impossible to prevent great damage by trespass, and destructive, even if secret, warfare among the cattle owners.

It would seem that the most practicable way to avoid a Canadian edition of the Montana sheep and cattle wars would be to continue and extend the system of individual leases, which has served that purpose fairly well up to the present time. Two plans have been suggested: (1) to buy out the small owners and lease the grazing, on extensive ranges, to the large ranchers, or (2) to retain the small owners, giving them the exclusive right to the grazing on the coulees where they are located, and grant such rights to large owners only when they are similarly situated. The latter plan would be less expensive, and, if properly worked out, more conducive to the fullest use of the resources of the country. It is well adapted to local topography and customs, and would involve no fencing on the government's part. Each man involved should be strictly limited in the number of cattle he might keep, and, to avoid complication, he should own no range outside of the reserve. His homestead, with the range attached, should be converted into a single leasehold, forfeitable for misconduct; and the leaseholder would be, in effect, an assistant ranger, responsible to the Chief Ranger for the prevention of fire and trespass in his particluar range.

Cutting regulations.—As already indicated, very little merchantable timber remains on the east side of the Porcupine Hills. If local scarcity is so great as to make its utilization profitable, the cutting should be carefully supervised, and a sufficient number of seed-trees left to assure propagation. The tops should be downed, but burning, in most cases, would be superfluous and dangerous.

The dense stands on the west slope may be best treated by the selection system, using a diameter limit of about sixteen or eighteen inches for the first cutting, to avoid too great an interruption of the crown cover.

As I have previously implied, the cutting of firewood should be limited to dead material. Building logs may be allowed to adjacent settlers when they may be cut without injury to the forest; but few of the stands are dense enough to fulfil this condition.

Fish and game protection.—An attempt should be made to co-operate with the provincial authorities in enforcing the game laws. Trout and deer should have a close season, and systematic war should be waged on the timber wolves. The coyotes, however, may be tolerated, since they are not very dangerous to cattle or deer, and are probably of service in keeping the rabbits in check. When game has re-established itself, permits to enter the reserve for the purpose of hunting, shooting or fishing in season may well be issued to reputable residents within the fifty mile radius.

Respectfully submitted,

E. G. McDOUGALL,

Forest Assistant.

No. 25.

REPORT OF E. G. McDOUGALL ON LANDS NEAR FORT A LA CORNE, SASKATCHEWAN.

DEPARTMENT OF THE INTERIOR,
FORESTRY BRANCH,
OTTAWA, JANUARY 4, 1912.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa, Ont.

SIR,—As instructed by you in your letter of November 6, I have made a short reconnaissance of non-agricutural lands in the vicinity of Fort à la Corne, Sask., with a view to determining the boundaries of the land suitable for forest reserve purposes. Herewith I present a map of the area examined, with the proposed boundary marked in green

As stated in my report for the month of November, two areas south of the river were found to be unsuitable for agriculture, and are recommended for reservation. The prevailing type of soil is sandy and the timber is jackpine, attaining a size of about twelve inches by fifty or sixty feet, suitable for ties or building logs. The country is by no means covered with timber of this type, however. There are considerable park-like areas, large muskegs fringed with spruce and tamarack, and extensive burns, not all of which are restocking. A fire last year burned over a large tract to the east of the Hudson's Bay Company Reserve. Much of the large jackpine timber has been wind-thrown, both by uprooting and by breaking at the butt. I have not sufficient data for an estimate as to the number of pieces available.

It will be noted that a piece of land in the angle between the main Saskatchewan river and the south branch has been left out of the reserve. The land here is open or scrubby, with aspen on the lower levels, and may be of some use agriculturally. Moreover, one quarter-section near the Forks has been sold, and four others homesteaded. So far as I was able to ascertain, the places are unoccupied at present; but it seemed best to avoid complications by leaving out this block of rather doubtful land.

Two other pieces of land, to the north of the river, have been left out of the reserve there for the same reasons, namely, that it is possibly an agricultural area and that there are existing claims upon some of the land. One piece, in townships 48 and 49, range 20, west of the second meridian, is an elevated scrubby plain, like that just described. Half a section there has been leased by the Church Missionary Society. The other block, in twonship 29, ranges 17 and 18, is said (by hunters who passed through it, and were met just north of it) to be an excellent poplar flat, bounded on the north by marshes and broken poplar land. The northeast quarter of section 31, township 49, range 17, belongs to the Canadian Northern railway.

The examination of the land to the north of the river lasted from November 24 to December 13. Owing to the unusual depth of snow, it was necessary to carry all the horse feed; so two flat sleighs and two assistants were required. For the most part we followed summer trails, making short side-trips, when possible, to reach and determine the boundaries of the agricultural land. Under the circumstances, the location of the boundaries could not be very thorough; but in many cases the types were so much intermixed along their edges that even after a much closer examination a straight and somewhat arbitrary boundary would probably be preferred. Of course, a closer examination is greatly to be desired, both to modify the boundary where necessary and to determine the amount of the timber.

For the rest, the land which was examined on the north side of the river is of the same type as that just described for the south side. The muskegs, indeed, are more extensive, the parks less so; but the bulk of the timber is still jackpine of good size, severely injured by fire and windfall. Spruce trees, singly and in clumps, along the creeks where they attained a diameter of from 24 to 36 inches were met with, but there was no heavy stand of such large-sized spruce timber.

On the north the sand-muskeg type passes over into a loamy poplar type with sloughs replacing the muskegs. On the south a belt of hilly poplar country generally intervenes between the sandy type and the river. The soil in this type is excellent, but the surface is so badly cut by ravines that practically none of the land is available for agriculture.

To the eastward the jackpine belt narrows to a breadth of three to four miles, and is said to continue northeast at a distance of two to four miles from the river into township 51, range 13, west of the second meridian. I had not time to follow it out in this direction and would not recommend that this portion of it should be included in the reserve, since it would be difficult to separate from the agricultural land. A similar belt to the south of the river separating the Lost river and Carrot river settlements contains a large proportion of fair agricultural land; there is, moreover, a settlement already established on the north side of the river in range 15. Another settlement in ranges 22 and 23 marks the western limit of the reserve north of the river.

I would recommend, therefore, that a forest reserve should be established in this region for which I should suggest the name of the La Corne Forest Reserve.

Respectfully submitted,

E. G. McDOUGALL, Forest Assistant.

No. 26.

REPORT OF E. G. McDOUGALL ON LANDS NEAR PRINCE ALBERT, SASK.

DEPARTMENT OF THE INTERIOR,
FORESTRY BRANCH,
OTTAWA, February 6, 1912.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa, Ont.

Sir,—I beg to submit the following report on work which I have carried on under your instructions, in the neighbourhood of Prince Albert, Saskatchewan, during the past fall.

NATURE OF THE WORK.

The object of the survey was the location of the boundaries of the non-agricultural land adjacent to the Nisbet and Pines forest reserves, with a view to the extension of these reserves. In addition, it was necessary to obtain full information regarding the residence and improvements of a large number of homesteaders, who had located upon very poor land adjacent to the Nisbet reserve.

The party, six all told, was rather cumbersome for the rapid examination of an extended boundary. Accordingly, it was divided for a time, two men going up the river with a canoe, and two going east with a team. The best results were obtained with parties of two men with a conveyance and a light outfit.

TIME IN SURVEYING DISTRICT.

The party, which had been occupied during the summer in southern Alberta, arrived in Prince Albert on August 31, and broke up when the colleges opened; two of the students had to leave on September 9, and the other two stayed on until the 21st of that month, when the cook also left. By that time most of the distant work had been done, and I was able to continue single-handed, working mostly from Prince Albert. The local rangers gave me much assistance, particularly when I visited the Pines reserve.

From November 1 to December 17 I was engaged in the examination of a similar tract of country in the vicinity of Fort à la Corne. This work has been elsewhere reported on, and is only mentioned here because the accompanying descriptions apply to it very closely.

CLIMATE OF THE DISTRICT.

The summer climate of the Prince Albert country is very pleasant, as a rule, although last year there was not enough warmth to mature the crops. On account of the cool summers, heavy soils, especially if wet, are less productive than somewhat sandy soils.

The winter climate is decidedly severe, and the older residents, instead of growing habituated to the cold, frequently become more sensitive to it. Of course, the cold is much more bearable where forest growth gives shelter from the cutting winds.

The muskegs and sloughs with which much of the country is covered are excellent breeding-grounds for mosquitoes, but last year was too cold to coax them out and they were practically absent in September.

TOPOGRAPHY.

The North Saskatchewan river flows between banks of varying height, fringed with a narrow belt of spruce, aspen, balsam poplar and paper birch. Three fair-sized tributaries (the Shell, Little Red and Sucker rivers) enter it from the north; the two former convey many sawlogs from remote limits to the mills at Prince Albert. Though both the main river and the tributaries have a stiff current, the country is level to the eye and very poorly drained, being half covered with lakes, sloughs and muskegs.

SOIL

A long sandy belt, perhaps a post-glacial lake-shore, commences in the Pines Forest reserve, crosses the North Saskatchewan river, and curves around to the east, passing close to Prince Albert, and 'fraying out' about ten miles farther east. Its width varies from three to six miles and there is an isolated tract of similar character to the north on the Shell river. After a break of about twelve miles, the sand belt reappears, much broader but less sharply defined, on both sides of the united Saskatchewan river. On the south side it soon 'frays out' in a series of isolated ridges and muskegs in a poplar country; while on the north, it continues eastward with varying width and some breaks, for an unascertained distance, leaving the river near Fort à la Corne and returning to it near Birch island, about fifty miles below.

Between the sandy belt and the clay-loam country to the north is a fairly continuous chain of sloughs and muskegs. Isolated muskegs are common in the sand type, and isolated sloughs, passing imperceptibly into lakes, in the other.

The outstanding types of soil, then, are:

- 1. Sand.
- 2. Clay loam.
- 3. Slough.
- 4. Muskeg.

Of course, there are intermediate grades, especially between 1 and 2.

TREE GROWTH.

The region described is in the transition area between prairie and woodland, and, though the latter predominates, the former also occurs in small areas (as seen on the map of the Pines reserve) on both sand and clay types.

Each type of soil has its typical arborescent flora, the jackpine on the sand, the aspen on the clay loam, with white spruce and balm replacing it on wetter sites, and the black spruce and tamarack bordering the muskegs. The paper birch is sometimes met with in gravelly places. The jackpine is here close to its optimum; it grows with great rapidity, and reproduces abundantly on the poorest sites. It does not attain large dimensions, fourteen inches being an exceptional diameter. Moreover, it is seriously afflicted by a parasite which covers it with witch's brooms.

The aspen, on suitable sites, attains a diameter of ten or twelve inches. It is used at present for cordwood, and in future may have a value for pulp.

The white spruce, commonest near streams, attains a maximum diameter of 36 inches. Unfortunately, trees of such size occur only singly or in small groves.

The slack spruce and tamarack of the muskegs are stunted where there is too much water, but on the margins attain diameters of ten to fourteen inches. The tamarack is as yet untouched by the saw-fly, and it is to be hoped that some means will be found to save it from this pest, for the wood, though scarce, is the best the country affords for wagon tongues and similar purposes, and for fuel.

The paper birch is also rare, and shares the special uses of the tamarack. It does not attain sawlog size.

OTHER VEGETATION.

Grass on the drier sites is very scanty; but in the poplar country it is luxuriant, and grows mingled with a wild pea-vine. The muskegs provide some wild hay, and the sloughs are full of a long reed, which is also cut for hay by the settlers. Blueberries are abundant in the sand country, and are gathered for the market by Indians and others.

The sphagnum of the muskegs could probably be manufactured into peat fuel, when the cordwood supply has been reduced somewhat.

FIRES.

Fire, the foe of the forest, has been unable in this region to replace it by prairie, or even, apparently, to stay its advance on the grassland, yet it inflicts enormous loss on the encroaching timber. It would seem that the 'climax forest' on the clay soil is a white spruce type, and the same may even be true of the sand ridges, yet vast areas are repeatedly fire-swept before the jackpine and aspen, the 'forlorn hope' of the forest, have passed the thicket stage. The fires are promptly followed by a vigorous young growth of trees, not, as in Southern Alberta, by a park-like formation, gradually changing to prairie.

There is usually just enough grass on the jackpine land to carry fire, but the young thickets and the recent slash are most exposed to it. The latter, indeed, is

not much injured, but may carry fire to the former.

The trails in the sand-hills cannot be crossed by ground-fires, if watched; crown-fires, of course, are another matter. Back-firing from a trail or prepared line in an

open part of the stand is probably the best method of dealing with them.

On the poplar land, ground-fires are difficult to check, on account of the thick growth of grass and pea-vine. The reeds on the sloughs deprive them of value as lines of resistance; and even the muskegs, if partly dry, may become a shelter rather than a barrier to the enemy.

FISH AND GAME.

The Saskatchewan river once abounded in fish, but their numbers have been greatly reduced of late years. The Shell and Little Red rivers have been spoiled by log-driving. Whitefish and suckers may be had on some of the smaller inland water-courses, but there is nothing in the locality examined to attract either the commercial fisherman or the angler from any distance.

Game, on the other hand, is still abundant. The sloughs swarm with ducks, the timber with grouse; wild geese sometimes halt in the neighbourhood, and rabbits are plentiful throughout the district. Of larger game, moose and jumping deer were seen within a few miles of Prince Albert, and a few elk north of Fort à la Corne. Coyotes approach to the very edge of the town, and engage the dogs in vocal competition. Tracks of bears and timber wolves were seen in the remoter parts.

The moose, deer and elk naturally prefer the fertile poplar country, but as this is now being cleared and settled the animals take refuge in the jackpine sand-hills.

ROADS.

A few good highways, generally keeping close to the old Indian trails, have been constructed, but the majority of the trails are fit for use only in winter. Summer travel, except along the main roads, is decidedly difficult, even on foot. A system of passable trails for patrol purposes is a present necessity, and will greatly increase the usefulness of the rangers.

AGRICULTURE.

The clay-loam soil is the best in the district, and mixed farming is a thriving industry. As already mentioned, the country is hardly adapted for mere grain-growing. The sloughs, when drained, give good hay and grain crops. The cost of draining varies greatly, but steady progress is being made, and every ditch affects a considerable area. In many places, drainage would be a profitable public enterprise.

The sand country is naturally unattractive to the farmer, yet where it approaches the town it is sometimes homesteaded. Excellent potatoes can be grown, and stable manure thrown away in Prince Albert might be used here to advantage; with its use, the cultivation of grain, small fruits, and hardy vegetables might well be possible.

The muskeg type is regarded by the farmers as irreclaimable, even if drained. Bog hav is its only agricultural product.

STOCK-RAISING.

The region is unsuitable for horses; neither the bog hay nor the slough water agrees with them, although cattle thrive on both. Oxen, despite the strong prejudice against them, are replacing horses on many farms. Though painfully slow on the road, they are excellent for the heavy work of breaking and plowing. A few sheep are kept on some of the farms, and seem to do well. The slough country supports domestic ducks as well as wild ones, and chicken farming is the main reliance of the settlers in the sand belt.

HOMESTEADERS.

The eastern block of the proposed extension of the Nisbet reserve is cut off from the main body by a number of scattered homesteaders; some of them had abandoned their entries after cutting off the cordwood, and others had not started to improve, but a few had made substantial improvements and were producing potatoes and poultry.

The northern block of the proposed extension is similarly cut off by homesteaders, who in this case have located along a narrow strip of good clay country between two sand areas. Their farms may be productive but are somewhat isolated from neighbours. Had the lands been vacant they might well have been included in the reserve.

There is also an isolated patentee in the heart of the northern block. His farm, close to the Shell river, is very productive, and it will probably be unnecessary to remove him.

CORDWOOD LICENSES.

A Prince Albert cordwood firm has covered much of the jackpine land with its license, thereby protecting it from homesteaders, and the head of the firm has been active in demanding the reservation of the tract for forest purposes. The license also covers some poplar land, fit for homestead when cleared, and exposed to much danger from fire in the meanwhile. For these reasons, the outlying poplar lands, not included in the forest reserve, should be cut over as soon as they can be made accessible.

When the reserve is established, the license will naturally be allowed to run its course. The market conditions, as well as the natural conditions, favour a tie-and-cordwood management, cutting to about ten inches, and thinning for cordwood in the younger thickets. In future, the demand for saw-timber is bound to increase, and therefore steps should be taken now to plant at least the better sites with desirable species, such as white spruce and, possibly, Scots and red pine. The jackpine may be clear-cut, for the cones on the ground will germinate when the trees are removed.

FIRE PROTECTION.

Trails for patrol purposes should be constructed through all parts of the reserve; a good deal of floating corduroy will be necessary. In the drier parts the trails, if

travelled to any extent, would serve in some measure as fire-guards, or at least as lines from which to back-fire. In addition to a diligent patrol, local co-operation in

fire-fighting can and should be secured.

South of the river there will be one ranger at Macdowall and one to the north of the Pines. If the extensions are adopted, two rangers on the north will be necessary, of whom one could be placed at the east end of the present Nisbet reserve, and one a few miles west of the third meridian. If the appropriation will permit the employment of only one ranger, he should be located near the west end of the Waspaton Indian reserve. In addition, the Canadian Northern Railway Company should be required to patrol its lines.

Owing to the close proximity to civilization, telephone lines in the reserves could have town and country connections, and would be highly serviceable. Lookout towers,

with telephones, would also be of great value.

Respectfully submitted,

E. G. McDOUGALL, Forest Assistant.

No. 27.

REPORT OF W. J. VANDUSEN.

TORONTO, November 9, 1911.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa, Ont.

SIR,—I beg to submit the following report, with accompanying maps, on the work which I have carried on during the summer of 1911 on the Porcupine mountains in Manitoba.

According to your instructions I reported to Mr. J. R. Dickson, in Swan River, Man., on May 17 last, and proceeded to the purchasing of an outfit and supplies for the party. I was joined by the other members of the party—Messrs. C. P. McAlister, H. B. Murray and Donald Greig—on May 24, and, having secured a cook and packer, the party was ready to proceed to the field on the 25th, but was prevented from doing so by the weather. It rained on the 25th and 26th, and on the 27th two inches of snow fell. This rain and snow, while delaying us, were exceedingly beneficial, inasmuch as they proved a very effectual stop to the forest fires which had been burning for some time in the region. The following day (Sunday) being fine, we were able to make a start on Monday, and, although the roads and trails were in very bad condition we arrived at Cross lake on the afternoon of May 31.

NATURE OF SEASON.

The first part of the summer (June and July) was very wet. As a result, progress was slow, and the continual wet was hard both on the equipment and on the health and spirits of the party. During August and September we had less rain, more than half of the number of days being without rain. On quite a number of days it was difficult to do much satisfactory work on account of the heavy wind hindering tree-top observation to a considerable extent. According to natives, the season was one of the

worst experienced for mosquitoes, it being almost impossible to run a compass or take notes on some days. The mosquito pest lasted from our arrival until about the middle of August. Few of the days were hot and all the nights were cool.

NATURE OF THE WORK.

The work took the form of a reconnaissance survey, with the object always in view of determining a new boundary to the present Porcupine forest reserve which would include all land unsuitable for agriculture. It soon became evident that it was impossible to get a comprehensive knowledge of the area in the time at our disposal by merely running lines on the ground, as the hazel and mountain maple undergrowth made distance observation impossible. We, therefore, relied on observation from treetops to a great extent throughout the season.

The work was carried on by two parties, each composed of two men. In running compass lines a party made on an average about four miles a day, having, of course, to return the four miles or more to camp. We took advantage of all wagon and pack trails, and even moose trails helped along the work. In traversing the trails a party could make about four and a half miles a day.

ROUTE FOLLOWED.

Our first working camp was located on Cross lake in section 31, township 38, range 28, west of the first meridian. From there we went to Whitefish lake and thence along the southern boundary of the reserve to Woody river. We then moved to section 7, township 38, range 28, and from there by a series of camps in a northeasterly direction, striking the railway at Birch River Siding. From Birch River Siding to Barrows Junction we had a camp at each station and worked from the railway by means of velocipedes. This proved to be a very rapid method, and Barrows Junction was reached on August 23. At this point we left the railway and moved in a general southwesterly direction, meeting the northern boundary of the reserve at the northeast corner of township 42, range 31, west of the first meridian.

My three student assistants left for college on September 13. On September 16, the packer, cook and myself left Bowsman to go up the western boundary of the reserve. On reaching the southwest corner of the reserve we found a winter road, instead of a summer road as expected, and as we had provisioned for a rapid trip were unable to go more than six miles north. From this point, however, I could see for at least ten miles north, and found that the country is all gently rolling. I would recommend that a summer road be cut up this western boundary, and when this is done a closer examination of the area immediately to the west should be made with the view of reserving it if necessary to protect the head-waters of the Swan river.

During the season we had twenty-five main camps and numerous sub-camps, and traversed approximately eighty miles of trails.

TOPOGRAPHY.

Most of the rough area known as the Porcupine Mountains is found in the province of Manitoba. The level area to the west rises gently and gradually until within about six miles of the Manitoba boundary, where it breaks into rough hilly country. From here eastward to within two or three miles of the Canadian Northern Railway, for two townships on either side of the eleventh base line, the country is rough and hilly. The falling off of the mountains on the north and south becomes more and more marked on moving eastward. The eastern edge of the mountains is very rough, falling off to the railway quite abruptly. The Canadian Northern Railway from the eleventh base line to Powell Siding skirts along the edge of the rough country, avoid-

ing as much as possible the large muskeg which extends eastward to Swan lake and Dawson bay. On the first plateau the country is for the most part gently rolling, with a large percentage of black spruce muskeg with jackpine and poplar ridges.

Only two lakes of any size were met with during the season, namely, Whitefish lake and Cross lake. Good water was always available in the numerous streams, many of which are fed by springs. Of all the streams only seven deserved the name of river; these were the Woody, Bowsman, Birch, Bell, Steeprock, Rice and Armit rivers.

A number of the smaller streams showed strong indications of the presence of iron. Again, many sulphur and salt springs were met with, which seem to indicate the breaking down of iron compounds in the hills.

SOIL

The hills, in the main, are clay, no bed-rock being seen in any of the hills or cutbanks. On the south the subsoil is clay, with usually a good covering of loam and humus, but occasionally boulders are quite numerous. From the correction line north along the proposed boundary the soil becomes very sandy, with gravel in places, until Barrows Junction is reached, where it changes again to clay.

In the muskeg, as a general rule, black muck was found down as far as the watertable, which varied from two inches to two feet below the surface.

TREE GROWTH.

The principal trees found on the Porcupine Mountains are:—

Picea canadensis (Mill, B.S.P.). White Spruce.

Populus tremuloides (Michx.). Aspen (White) Poplar.

Populus balsamifera (Linn.). Balsam (Black) Poplar.

Betula alba, var. papyrifera (Marsh., Spach.). White Birch.

Picea mariana (B.S.P.). Black Spruce.

Pinus Banksiana (Lamb). Jackpine.

Larix laricina (Michx.). Tamarack.

Of these trees white spruce is the only commercially important one at the present time, and that of a commercial size is to be found in the timber berths scattered along the lower slopes. On the uncut limits the white spruce would average between one and a half and two million board feet per square mile. The growth of white spruce in this region is shown by the following table:—

Age.	Diameter at Breast-height.	Height.	Volume.
Years.	Inches.	Feet.	Board Feet. (Doyle Rule.)
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180	1 · 1 2 · 4 4 · 0 5 · 0 7 · 2 9 · 1 10 · 7 12 · 0 13 · 0 14 · 0 14 · 8 15 · 7 16 · 3 17 · 7 18 · 0 18 · 0 18 · 0 18 · 0 18 · 0	6 12 26 28 36 46 53 62 67 71 75 80 82 84 86	16 30 50 60 80 100 139 160 190 220 255 300 333 365

This table is based on 26 trees on site 1, showing best development therefor.

This species is rarely found in pure stand, invariably being accompanied by poplar or birch in varying quantities. It is the timber tree of the region, very little else being cut by the lumbermen.

There are large quantities of mature poplar, both aspen (white) and balsam (black), in both pure and mixed stands. A large percentage of the aspen is defective, mostly at the heart; the balsam poplar appears to be in a very healthy condition, but the wood of both these poplars warps and checks so badly in the seasoning that as yet they have not been marketable. There is very little demand for fuel-wood in Swan Valley. If possible, some method should be devised for the utilization of this supply of poplar which is ready for the axe.

Black spruce is confined mainly to the muskeg and semi-muskeg, and its growth is very slow.

Tamarack is also largely found in the semi-muskeg. It borders the muskeg in many places, and in all cases appears to be in a very healthy condition, no evidence of its fatal enemy, the larch saw-fly, being noticed. I might also add that both white spruce and tamarack were prolific seed-producers this year.

White birch is found on the south, scattered with the poplar, but on the north there is more birch than poplar. The trees are too crooked for lumber, but would make excellent fuel.

Very little mature jackpine remains, nearly all having been cut for ties.

After going up the first rise of the mountain in most cases one meets young growth of poplar or jackpine about twenty to twenty-five years old. These two species come in first after a fire, but in many places the white spruce is coming in under the poplar which will eventually be displaced by the more persistent spruce. Above this first rise this fire-muskeg type would constitute from eighty per cent to ninety per cent of the area. I venture to say that there is practically no merchantable timber on the present Porcupine Reserve.

The following percentages of areas will give an idea of the condition of the area proposed as an addition to the present reserve:—

a to the process received	Percentage.
Spruce timber, with mixture of poplar and birch	7.7
Poplar and birch	. 7.1
Poles (not in muskeg)	. 5.0
Burn, restocked	
New burn, without regeneration as yet	. 11.0
Muskeg, mostly black spruce and tamarack poles	. 25.9

THE BOUNDARY PROPOSED.

In locating the new boundary I have been guided by three factors:—

- 1. Topography.
- 2. Soil.
- 3. Tree growth.

The boundary proposed, as shown by full yellow line on accompanying maps, is approximately 106 miles in length, adding 428½ square miles to the reserve as at present outlined. This area is of no agricultural use. Lying next to the boundary of the present reserve is a gently rolling area composed of muskeg, with some fifty to sixty per cent sandy, gravelly or stony ridges. These ridges are covered with jackpine and poplar twenty to twenty-five years old. Next to this is an area of rough, rolling country, part of it bearing good timber and part of it fire-swept. The boundary on the north and south skirts the edge of this rough, rolling area, but from this rough area to the proposed boundary on the east there is a very sandy strip from one to two miles wide.

North and south of the present reserve, immediately east of the second meridian, are two areas, 'A' and 'B,' inclosed by a broken yellow line, which I would also recommend to be added to the reserve.

The area on the north ('A') slopes gradually to the northwest and has a loamy clay soil. A considerable portion of the area carries mature poplar, with scattering white spruce. Spruce poles also cover a considerable area and there are found a cer-

tain amount of muskeg and jackpine ridges.

The area on the south ('B') slopes gradually to the south and the soil is, in the main, clay loam. Just east of the second meridian a large muskeg extends east about six miles. The ridges are covered with jackpine and poplar about twenty-five years old. The remainder of this area is mostly covered with mature white spruce and poplar.

I do not think there is any likelihood of either of these areas being put to agricultural use in the next fifty years, and, therefore, they should be included in the forest reserve, as, in that condition, they can be better administered for the benefit of

the surrounding country.

Again, it will be noticed that the eastern boundary keeps close to the railway, without crossing it, however. East of the railway there is a large area ('C') fit only for growing trees. This area east of the railway, over as far as Lake Winnipegosis, is practically level, the only break being southeast of the south end of Swan lake, where a low range of hills, known as the Kettle Hills, runs northeast and southwest. From interviews with a number of the oldest Indians who have roamed over this section of the country for the last four or five decades, it appears to be mainly muskeg. The numerous streams crossing the railway and flowing east are lost in the muskeg, only the larger rivers retaining any semblance of a course. Around Swan lake, along Shoal river, on the shores of Dawson bay and Pelican bay and on the east shore of Lake Winnipegosis down to Duck bay there is a strip of dry land varying in width from half a mile to three miles. The remainder is muskeg, with about 25 per cent sandy ridges. The ridges are stocked for the most part with twenty-five year-old jackpine, poplar and spruce. The growth in the muskeg is confined to black spruce and tamarack, which rarely exceeds six inches in diameter. From the mouth of the Woody river south for some distance past the Swan river there is a considerable area of good hav-land.

Practically the only use to which this area can be put is the growing of trees. A market for its product can be reached by both rail and water, and on account of its peculiar position the fire danger can be reduced to a minimum. I would, therefore, suggest that a boundary be located between Birch river on the railway and Lake Winnipegosis, and that the area north of it, to Dawson bay, Red Deer river and Red Deer lake be put into a forest reserve.

FIRE PROTECTION.

Fire has done great damage to the growth on the Porcupine mountains. About twenty-five years ago immense fires must have raged, which left only a small portion of the timber standing. Over this burnt area jackpine and poplar soon made their appearance, the spruce coming in a little later under the shelter of the poplar. In some cases, being burnt a second and a third time, the soil is robbed of the vegetable covering which took ages to accumulate, and the result is a treeless area. The most recent fire was that of this spring, when approximately 150 square miles were burned over, part of this area being young growth of poplar and jackpine twenty to twenty-five years old, and part mature spruce and poplar. This fire was stopped by the heavy rains and snowstorm of May 25 to 29. Only three months after the fire evidences of the spruce wood-borer were noticed in this standing burnt spruce.

There are four danger points to watch in trying to prevent fires, viz., the railway, the sawmill, the settler and the camp fire; and the greatest of these appears to be the railway. To secure adequate fire protection on the Porcupine Reserve I would recom-

mend that there be two fire-rangers, and that they live either on the reserve or very close to it. Each should become thoroughly acquainted with all the trails and roads in his district and see that they are kept in proper condition, especially during the summer. Trails and roads should be cleared before the freeze-up, for when a trail is cut in midwinter—the easiest route (over muskeg and lake) being, of course, selected—it is usually worse than useless during the summer, the time of fires. Lookout points commanding endangered territory could be very easily located. During the dry season I would recommend a daily patrol, at least, of the railway on velocipedes, and the rangers should have absolute authority as to the time and place of burning replaced ties on the right of way. Then, again, outlying settlers should be visited at least once a year and cautioned as to the proper use of fire and their liability in the case of its spreading from their land.

FISH AND GAME.

In Cross lake we found the jack-fish, and in Whitefish lake, jack-fish and pickerel. Moose were very plentiful. The sulphur and salt springs, of which there were a considerable number on the slopes, were much visited by them, and in most instances well beaten trails radiated from them like the spokes of a wheel. Then there were the black bear, timber wolf, fox, deer, beaver, otter, lynx and mink. This forest reserve should become one of our best game reserves.

Respectfully submitted.

W. J. VANDUSEN,
Forest Assistant.

No. 28.

REPORT OF FRANK M. BEARD.

DEPARTMENT OF THE INTERIOR,
FORESTRY BRANCH,
OTTAWA, September 15, 1911.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa.

Sir.—I have the honour to submit the following report and map to accompany, covering the work done during the season of 1911 by the Hudson Bay Survey party

of the Dominion Forestry Branch.

As instructed by you I left Selkirk June 24, 1911, via S.S. Wolverine, accompanied by two men. arriving at Warren's Landing on June 26 and at Norway House the same day. As the canoe I brought up with me was not serviceable on the lakes that we would encounter I traded with the Hudson's Bay Company at this post for a larger one. Mr. Blackford, fire ranger at this post, kindly furnished us with two men as guides to Cross lake.

We left Norway House June 27 and travelling by the East Branch of the Nelson river, reached Cross lake July 2. Procuring a guide at this post we left July 3 for

Split lake, arriving at this post July 7.

One of the men who came down with us to this post returned to Norway House, complaining of being too ill to travel farther. Here, as instructed, Mr. H. B. Blount

was waiting with the supplies, a cook and two canoemen. According to your instructions I interviewed Mr. J. T. Whyte (now deceased), who was stationed at this post as fire-ranger, regarding the timber inspection accomplished by him the previous summer. I was informed that he had inspected the territory from the Manitou Rapids to Buttneau lake, a distance of about seventy miles by railway line, and that his reports and maps had been sent into the Department and accepted.

After some difficulty, we procured three Indian canoemen to assist us to York Factory. As we had planned to come back by the Hayes river it was necessary to take

an extra canoe to the bay to insure the Split Lake Indians a return.

The party was made up of the following:-Mr. Wilkins, cook; M. Swanson and McLean, canoemen; Mr. H. B. Blount, four Indians and myself. With three canoes. we left Split lake on July 11, travelling by the Nelson river until we arrived at the mouth of the Buttneau river, going up this river into a small lake. We portaged over into the Kettle river and proceeded up to Kettle lake, as this was the point at which Mr. Whyte left off. We inspected the timber along the proposed route of the Hudson Bay railway to the Bay. Finding the timber of little commercial value, we were able to cover the territory in a much shorter time than we had anticipated. From Kettle lake we went down the Kettle river into the Nelson, and via Nelson river to Hudson Bay, inspecting the timber by running compass lines back to the railway line, where practicable. Where the railway line extended south of the river at its greatest distance and the area intervening was covered with deep muskegs, making it impsosible to traverse during the summer months, I interviewed members of the railway survey party who ran the line from the Bay to the Manitou Rapids, thus gathering information as to the timber conditions of this locality thirty miles along the proposed railway line below Angling river.

Arriving at York Factory on July 26, we repaired our canoes and after some difficulty procured a guide to take us through to Norway House. From York Factory

we sent one canoe back to Split lake with three Indians.

The party, now made up of seven men, left York Factory July 27, travelling by the Hayes river into the Echemanish and Nelson rivers, respectively, arriving at Norway House August 21. On August 25 we proceeded to Warren's Landing on S.S. Highlander, and on the 27th left the Landing on S.S. Wolverine, arriving in Selkirk September 1, 1911, a distance of 1,000 miles covered by canoe from Norway House to Hudson Bay and return.

OBJECT OF THE SURVEY.

The main object of the survey was to make a reconnaissance of the country adjacent to the proposed route of the Hudson Bay railway between Buttneau lake and Hudson Bay. The reconnaissance was to consist of locating and estimating merchantable timber to be used as ties for the construction of the proposed railway found within a distance of eight to ten miles of the railway line, excepting on rivers where such timber would be available to the line by driving. Where the timber was not merchantable it was inspected simply by noting the species and the forest conditions.

The methods best adapted for fire protection were carefully noted.

METHODS USED.

From points along the river course, at intervals of eight to twelve miles, compass lines were run back to the line of railway when possible and tied on to that line. The water-courses were also used in locating types. From advantageous points, such as heights of land and the tops of trees, field-glasses were used to good advantage in examining and locating the forest types. Trees under eight inches in diameter at

breast height were considered unmerchantable. Territory not commercially timbered, *i.e.*, producing trees under eight inches in diameter at breast height, was inspected, giving a description of species, type and prevailing conditions.

WEATHER CONDITIONS.

Information gathered from the inhabitants of the country shows that we passed through an unusual season for this district. During the months of July and August. rain fell continuously and high winds from the northeast were constant most of the time. The temperature ranged from 40° to 50° F., thus making a very unsatisfactory climate for the production of merchantable timber. Frost occurred August 28.

GENERAL DESCRIPTION OF THE COUNTRY.

Topography.—The absolute elevation of Split lake is 470 feet above sea-level, giving a drop of 37.6 inches to the running mile between Split lake and Hudson Bay, a distance of 150 miles. The drop between Split lake and the mouth of the Limestone river (a tributary of the Nelson) is 420 feet, or 50.4 inches to the running mile for a distance of 100 miles. This shows that the drop in elevation between Split lake and the Limestone river is very abrupt, and below the Limestone river to Hudson Bay, the fall is very slight, having a drop of 50 feet in 50 miles.

The surface of the total area covered is undulating to nearly level. The territory surrounding Split lake is composed of areas of occasional granite rock outcrop worn down to the general level of the country by the glaciers of the glacial period. Below

Split lake the country is practically level, with a slight-northern exposure.

Drainage.—The divides between river courses are very low surrounding Split lake, it being not uncommon to find a muskeg situated on the divides. There is a moderate slope down toward the Bay and it occurs in east and west undulations, so that there is no drainage except by the Nelson river down to the Bay. There are some streams running into the sides of the river, but they, like the Nelson, cut deep with walled trenches, sometimes eighty feet high, as steep as boulder clay will stand, and that means an angle of sixty degrees for this height. After getting on top of these banks one will find the moss very deep and twenty feet back from the edge of the stream a muskeg will be discovered, indicating that the drainage is very poor. The country is covered by muskeg, but there are a few large lakes, a fact which shows that the drainage of the country is comparatively new.

DESCRIPTION OF FOREST COVERED.

Kettle River District.—The railway line comes into this section between Kettle and Buttneau lakes, following the Buttneau river a distance of eight miles, crossing the Kettle river about twelve miles from its mouth and then following this river on

the south side in a northeasterly direction.

The territory surrounding Kettle lake and Buttneau lake has been burned off recently, leaving a most desolate-looking country. This continues on the north side of the river to the banks of the Nelson, and extends over nearly all the country between Kettle lake and the mouth of the Kettle river. On the south side of the river near the lake an old burn has ravaged the country, leaving a very poor growth. This converges into a pole-type to the northeast, and towards the mouth of the Kettle river the type changes to an old burn. A low ridge divides the drainage of the Buttneau and Kettle rivers. Along the top of this ridge jackpine predominates. On the slopes tamarack and black spruce are associated. Along the south of the river the slope is very gentle and extends back for several miles. Black spruce predominates, associated with a small per cent of tamarack.

The only merchantable timber in this district was found along the banks of the Kettle river, in small plots located on flats at the turns in the river.

There are 7,000 spruce ties of first and second grade, 6,000 first grade and enough timber of the 12-inch and 14-inch diameter-class necessary for the temporary bridge construction on the Kettle river.

This timber is accessible to the railway by the Kettle river. The best method of taking this out is to have it cut by the railway contractor when the road is put through. A small contractor would not take the contract for the following reasons:—

1st, because the timber is too scattered;

2nd, because the base of supplies is too far away, making the cost of transportation too great;

3rd, because the quantity of timber is too small to insure any profit.

Kettle River to Angling River.—This district is drained by a small creek, showing that the slope to the river is very gentle. The timber has been practically all burned off in former years. Some areas are now producing a stunted growth of spruce, running to the diameter of three to four inches. Most of the territory, especially back from the river two or three miles, is covered with muskeg. There are no large lakes in the district and this applies to the whole area to the Bay. A characteristic feature of the black spruce is that it attains its best growth along water-courses and lakes. This, then, is one reason why the forest cover does not reach merchantable size.

Angling River.—This river is well named, being very crooked. Its banks are forty to fifty feet high, consisting of a green clay. Along the flats of the stream caused by the wash of high water the spruce growth reaches the diameter of 8 in. to 12 in. at breast-height, and is estimated at 4.500 ties. The timber growing back from the stream is of a spindly growth.

The cutting of these ties would not be profitable to either a railway contractor or a sub-contractor for the following reasons:—

1st, because supplies could be transported only on ice, making the cost too great, Angling river being not navigable;

2nd, because the stream is not suitable for transport of ties to place of construction;

3rd, because the quantity of timber is too limited.

Angling River to Hudson Bay.—The only merchantable timber found in this district is situated in small scattered plots along the banks of the Nelson river, and is estimated at 1,400 ties. The timber found in this district would be available by booming and floating it down the Nelson river to its mouth, but being so limited in quantity it would hardly pay to handle the proposition.

The railway line runs adjacent to the river in a northeast direction to Hudson Bay and is located from ten to fifteen miles south of the river.

The territory immediately below the Angling river is covered by a dense growth of black spruce running in the diameter class of four to six inches, the large trees being found along the stream. This pole type extends as far as our line traversed, six to eight miles, and continues down the stream for fifteen to twenty miles, running into an old burn. This area has been restocked by a sickly growth of black spruce and tamarack, the tamarack being found in mixture with spruce on the semi-muskeg areas. Farther down towards Hudson Bay this type merges into a pole stand, consisting almost entirely of black spruce everywhere, including the muskeg situations. This type compares favourably with an alpine type such as is found at high altitudes. On high peaks the conditions for tree growth become unfavourable since the extreme winter temperature above the snow cover and frosts nearly every month in the year can be endured only by the hardiest of species. The wet soil of this sub-arctic region, frozen most of the year, or the thin soil of the alpine peaks, produces trees stunted in form, with small diameters. This type continues to the water-line on Beacon Point.

The area along Hudson Bay, being very low, was covered with water during the past summer.

SUMMARY OF TIMBER.

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This shows that ties for this section of the proposed railway will have to be imported.

GENERAL CONDITION OF FOREST.

Forest canopy.—Black spruce predominates, associated with tamarack and semi-muskeg areas. Aspen and jackpine occur in mixture with the spruce on ridges and along water-courses.

Black spruce is primarily a swamp tree, and is a common inhabitant of cold, poorly drained muskegs, a typical tree for this country. It occurs in pure, dense stands producing trees small in diameter and stunted in growth.

Jackpine and aspen occur on very limited areas and in small quantities in this locality. The type disappears entirely 100 miles from Hudson Bay.

Forest cover.—Alder forms the principal undergrowth in spruce types in restricted areas. Black willow is found under spruce on well drained plots along river-courses.

Forest floor.—Labrador tea is distributed over the whole area, growing in dense formation with moss, making an ideal situation for fires in a dry season and for muskegs in a wet season.

Density.—In the spruce and tamarack types the density averages six.

Density deals with the number of trees found on a given area. The greater the number growing on an area, the more intense will be the competition for the chief factors necessary to growth, which are soil and light in this locality.

The dominating forest canopy, as stated before, consists of spruce and is practi-

cally all composed of the same age classes, owing to the repeated fires.

Naturally under these conditions the competition will be very keen, as the demands on light and soil will be the same. The spruce, being lateral rooted trees, have not only to compete among themselves for the nourishment to sustain life, but they must also compete with the annuals for these factors.

The competition among themselves which is very strong, owing to the density of tree growth combined with the competing annual plants and the limited amount of plant food in a muskeg situation, explains to a great extent the small, spindly growth in this locality.

Density in a stand has the tendency to direct the trees' growth upward towards the light, clearing the boles of side branches and producing long straight trunks, finally crowding the weaker species out and dividing the forest into two classes, the dominant and the dominated. This theory applies very well when the soil conditions are favourable for the maintenance of this increased height-growth.

But the black spruce is a very tolerant species, the boles do not clear themselves readily, and the trees grow slowly, by reason of the adverse soil and weather conditions. Thus we find that after 100 years growth the development of the stand is about equal, as there is no division into dominant and dominated classes, consequently the trees are stunted in height, running to a small diameter and bushy in form.

Reproduction.—After a fire reproduction takes place very slowly on account of the thickness of the moss and the repeated ground-fires.

There are no pioneer species, such as the poplar and birch, to restock an area after a fire, as do these species in most localities to the south of Hudson Bay. The black spruce does not bear seed abundantly, although it usually bears some seed every year. Years of especially abundant seed-production are at long, irregular intervals, and for this reason the ground is left barren for many years after a fire, as the spruce must establish itself on the denuded areas.

Rate of growth.—The rate of growth is very slow on account of suppression or unfavourable conditions. Spruce will, however, produce a fair-sized tree when conditions of soil, moisture and light are favourable.

I made a stem analysis of black spruce on two different locations. The first analysis was made on a well drained area along the Kettle river, where the soil was porous. Trees 5 in. to 6 in. in diameter and 40 to 50 ft. high were found to be 110

years old.

The second analysis of spruce was taken in a swampy locality where the soil was non-porous. Trees 3 in. to 4 in. in diameter and 20 to 30 ft. high were found to be 100 years old. This shows that under favourable conditions the black spruce will grow to fair dimensions. The rate of growth for the other species was not taken, as they formed a very small percentage of the stand.

Soil.—The subsoil of this area resembles very much the clay found in Ontario. To get a fair idea of the soil I took borings in three situations. The first taken was on a low ridge situated near the Kettle river. Growing moss was six inches deep, moist; the decomposing moss ran to a depth of eight inches, and this merged into a wet sandy clay.

The second boring was made in a muskeg in the same area, the growing moss in this situation being eight inches deep, wet; the decomposed moss saturated with water

averaged ten inches in depth, and this ran into a non-porous clay.

The third boring was made fifty miles from Hudson Bay in a muskeg, being a typical situation for this region. The growing moss averaged ten inches in depth, wet; decomposing moss averaging eleven inches in depth, saturated with water, the subsoil being composed of a non-porous clay.

Ice was discovered in several localities, occurring generally in deep, cold moss

situations within a range of fifty miles of Hudson Bay.

To produce a habitat favourable for tree growth, the muskegs would need to be drained of the stagnant water found in such situations and the deep layers of moss should be burned off, making a mineral soil available for the germination of seeds. The area of muskegs covers thousands of square miles making it a project of great magnitude to drain such areas.

Climatic Conditions of Forest.—Spruce growth may suffer severe damage, as was shown in the season of 1910-11. Owing to sudden changes in the weather conditions peculiar to this locality, considerable areas of spruce trees were killed in the territory examined. The explanation seems to be that the trouble is due to climatic conditions. A sudden cold spell froze the moss and upon this fell a heavy snow. Following this a warm period started activity in the tops of the trees, but as they could not draw up moisture from the ground to supply the transpiration, the needles dried up and the trees were killed.

FOREST PRODUCTS.

Cordwood.—The forest covers thousands of acres in this locality, in fact the whole country from Hudson Bay to the timber line in the Arctic region is forested, except where the ground has been stripped of vegetation by the periodic fires. The possible supply of cordwood is enormous, but on account of its remoteness from settlement it has little commercial value.

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Fence posts.—A good percentage of the timber d areas should produce durable fence-posts. The trees grow very slowly, and the wood is composed almost entirely of summer growth. There are two separate periods of annual growth, spring and summer. The wood formed in the forepart of the season is light in weight and soft in texture. The outer darker part is termed the summer-wood of the ring. The latter is very hard and firm, and determines the weight and durability of the wood.

Pulpwood.—The black spruce, as stated before, is a very tolerant species, so that it does not clear itself well of side branches, and every branch on the trunk means a knot in the wood. This, combined with the hard wood produced by the greater proportion of summer growth of the spruce, makes undesirable material for pulpwood. The trees growing on the well drained flats along the streams should make good pulpwood, but as this area forms a very small percentage of the stand, the forest cover of the country could not be classed as a pulpwood type.

CONCLUSIONS ON THE TIMBER CONDITIONS.

- 1. Why the forest does not produce merchantable timber.—The climatic conditions are adverse to the production of merchantable timber.
 - 2. The soil and muskeg situations are not adapted to the production of timber.
 - 3. The density of tree growth is too great for the amount of nourishment.
 - 4. The repeated fires will not permit the establishment of a forest cover.

Uses of forest cover.—The forest cover is adapted to the protection of the watershed of the Nelson river.

The forest cover is fitted for the protection of fur-bearing animals and game.

Problem of forestry.—The problem is to drain the area so that black spruce will have favourable conditions to produce merchantable timber.

FIRES.

The conditions found in this district may be described thus:—

It is a region practically uninhabited, the only means of transportation being the water-courses, as there are no trails or roads. The only means of communication is by York boats transporting supplies from Norway House to the outposts of the Hudson's Bay company.

During the summer months the Indians bring their families in from the hunting grounds and gather in bands around the Hudson's Bay company's posts. At these

times there are about 350 Indians at Split lake and 300 at York Factory.

The Nelson river route between Split lake and Hudson Bay is used very little, as there was only one other party, tesides ours, over the route during the season of 1911. This is accounted for by the great danger to life in shooting the continuous chain of rapids in a river as large and treacherous as the Nelson. This country is travelled over by Indian trappers in the winter, when it is impossible to set fires. We found the north side of the Nelson river burned over to a greater extent than was the south side. The canoe route on this river follows the north shore most of the way, so that it may be assumed that all the fires started along this route at camping places and on portages were caused by the carelessness of man. When the fact is taken into account that this has been going on for scores of years and the fires are left to burn themselves out, it causes little surprise to find an absence of merchantable timber along the banks of this stream.

Another important factor in starting fires, especially on the south side of the river, where there is practically no traffic during the summer months, is the frequency of electric storms, as in several instances we saw trees that had been struck by lightning in factors and had been struck by lightning

in former years and had been the cause of several large fires.

The spruce forests are peculiarly liable to danger of fire in dry seasons. The trees are all small, composed of coniferous species and growing in dense stands, making a combination readily subject to fire. The lower half of every tree is easily inflammable, being covered with dry twigs and moss.

The lateral roots of spruce trees form a poor foundation for the support of the tree in deep moss situations. A fire sweeping through a stand of black spruce, if not completely destroying it, burns the moss away from the roots; leaving the trees unsupported, and kills the individuals by scorching the foliage and injuring the cambium, thus making an ideal condition for wind-falls, especially in this district where the uniform topography leaves free access to the sweeping wind-storms from Hudson Bay.

Protection.—Over large areas of muskeg the rate of growth is very slow and the present forest cover has little value commercially, but the forest cover should be protected, when practicable, to preserve the present stand for the protection of game and fur-bearing animals. The watershed of the Nelson river should be protected by keeping the forest cover established.

There are several difficulties in protecting this region under the present conditions:—

1st. As there are no trails or roads, the country back from the streams cannot be patrolled economically.

2nd. The canoe route between Split lake and Hudson Bay is not safe to travel over, especially by an inexperienced canoeman.

3rd. A ranger would be of little use in a huge, wild, uninhabited area of this kind with no assistance in fighting fires.

Fire is an extremely unnecessary evil and can be prevented by the exercise of care and judgment during the season of danger. The best preventive of fire is watchfulness on the part of all who travel in the forest to see that fires do not start.

If the fire-ranger at Split lake will impress this upon all travellers using the Nelson route below Split lake, I believe it will insure as valuable a protection as is possible under the prevailing conditions.

When the railway construction takes place the territory should be divided up into districts and a matrolman should be placed in each district.

Fire notices written in English and Cree were placed by our party on all portages and camping places.

FOREST ENEMIES.

- 1. Fire is the greatest destructive agent in this country at the present time, as there is no economical means of protection.
- 2. The high water carrying the ice out in the spring does great damage to the only merchantable timber in the country, which is always found along the well drained banks of the streams.
- 3. Adverse climatic conditions are detrimental to tree growth. No bug-killed timber was found in this district. This is probably accounted for by the shortness of the season, which does not allow the development of the life stages of insects.

It is interesting to note that the larch saw-fly was discovered at a distance of 200 miles above Hudson Bay on the Hayes river, being well established in this district and doing considerable damage.

CLIMATE AND NATURAL PRODUCTS.

Potatoes, radishes, lettuce and onions were grown at Split lake, but they were of a very poor quality, as sufficient cultivation was lacking to produce a thrifty growth and the weather conditions were adverse to the production of a good crop.

There is little doubt but that under proper cultivation, vegetables may become a profitable product. Although the growing season is short, covering a period of three

to four months and a half, the days are long and the sun is very warm, rain being very plentiful—too much so, in fact, during this season for plant growth—but I understand that dry seasons are not uncommon, and, furthermore, the fact that fires have burned large areas of the country would bear out this statement.

The Hudson's Bay company's factor at York Factory told me that he had tried to grow vegetables but the experiment proved to be a failure. As far as I know, no

grain has been grown in this locality.

The effect of the large body of water in Hudson Bay on the temperature, summer and winter, of the surrounding country is to make it much less extreme, rendering the summers colder and the winters milder. The climate around the Bay is foggy, giving the sun little chance of being valuable to plant growth. The mean temperature of the summer within 100 miles of the Bay will not be as high as it is farther back from it.

NATURAL RESOURCES.

Economic deposits.—From such observations as could be made, we found traces of copper, iron and mica. The rock formation from Split lake to the Limestone river is granite; below this point to the Bay the formation changes to limestone.

When the railway comes in there is no doubt but that the quarrying of granite

for building purposes on the plains will be a paying industry.

Water-power.—From Split lake to the limit of the tide, a distance of about 140 miles by the river, there is a drop of 470 feet. The velocity of the water through the rapids is on an average seven miles per hour, the rapids being distributed evenly between Split lake and Limestone river. The bed of the river is a solid granite formation and the banks are from 20 to 80 feet high between these points, making ideal projects for producing power for manufacturing, such as pulp-mills, grist-mills, &c.

Game and fish.—Much of the area inspected is well adapted for the production of large game, such as deer, moose and cariboo, and will undoubtedly become a para-

dise for the sportsman.

Fur-bearing animals, such as mink, otter, fisher and muskrat, are very plentiful. Several seal were seen along the shores of Hudson Bay, and white whale was seen in great numbers.

The whale-fishing industry may be developed when the railway is built.

Fisheries.—The fish found in the rivers and lakes are sturgeon, trout, pickerel, jack-fish, suckers and whitefish.

SPECIES OF TREES.

- 1. Picea mariana (Black spruce).
- 2. Larix americana (Tamarack).
- 3. Pinus Banksiana (Jackpine).
- 4. Populus tremuloides (Aspen).
- 5. Salix lucida (Willow).
- 6. Alnus tenuifolia (Alder).

Respectfully submitted,

FRANK M. BEARD,

Forest Assistant.

No. 29.

REPORT OF J. W. CURRY.

DEPARTMENT OF THE INTERIOR,
FORESTRY BRANCH,
OTTAWA, April 1, 1911.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa, Ont.

Sir,—Having received full instructions from you to make an examination of the timber suitable for pulp, on the Gull Rock lake and Trout lake watersheds, the Wenasaga river and other similar watersheds draining into Lac Seul, I beg to submit the following report:—

Leaving Ottawa on Tuesday, June 13, 1911, I travelled to Winnipeg, reaching there on the evening of the 14th, where I met Mr. Moodie, who was to assist in the work. Mr. Moodie and I were in Winnipeg until June 26 hiring men, purchasing supplies and awaiting canoes from Peterborough, Ont. We hired two cooks, but only two canoemen, as we thought it would be more satisfactory to wait until reaching Lac Seul where we could get some Indian canoemen, who would be able to act as guides in the country to be travelled.

Leaving Winnipeg on June 26, with Mr. Moodie, two cooks, and two canoemen, I reached Hudson in the evening. Here I was met by Mr. McLean, Indian Commissioner, who had hired four Indian canoemen for me, two being hired for the summer's work, the other two to help us as far as the Hudson's Bay Company's post on Lac Seul.

From Hudson I sent most of our supplies to Lac Seul post by the Hudson's Bay Company's steam tug, which plies between Lac Seul and Hudson station, on the Grand Trunk Pacific railway. This enabled us to move right in to Lac Seul without making more than one trip. With the canoes and the remainder of our supplies we started north, over the canoe route, to Lac Seul post, which is about twenty miles from Hudson.

Arriving at the post at ten o'clock, June 30, we made camp, after which we put our supplies in good shape and stored them in the Hudson's Bay Company's warehouse.

From here our work of exploration was to be commenced After obtaining as much information as possible regarding the country to be covered, from the Hudson's Bay Company's employes, we divided that section of the country east of Lac Seul post into two parts and proceeded to work it first.

COUNTRY EAST AND NORTHEAST OF LAC SEUL.

Starting east on Monday, July 3, we travelled together to within a few miles of the mouth of the Root river, which flows into the extreme northeast end of Lac Seul. Mr. Moodie went straight up the Root river to work it and its tributaries. With my party, I started up a small stream called Jackpine river, which flows into Lac Seul from the northwest, about five or six miles below the Root river. This river is eighteen or twenty miles long, and connects a chain of seven small lakes. There are nine rapids on it, with portages ranging from five to twelve chains in length; otherwise about two-thirds of it is a slow, deep and sluggish stream. From Round lake, which is a little over half-way up, to the mouth, it could easily be made driveable.

From the mouth of the river right to the head the timber has all been burned by a fire which swept through about twelve years ago, with the exception of a block of approximately six square miles, or 3,840 acres, which block is situated on the north side of Round lake. The block reaches north for about two miles, where it touches on Island lake (Island lake drains north). A burn of 1910 stretches north, east and west from here, the fire having run over part of the old burn on the upper part of Jackpine river. The timber on the above mentioned block averages 850 cubic feet per acre, making a total of 3,264,000 cubic feet. The stand consists of seventy per cent of jackpine, with average diameter of eight inches, twenty per cent of spruce with average diameter of seven inches, and ten per cent of poplar with average diameter of nine inches.

I had expected to make a portage across from the head of this river to another small stream, called Swan river, but the upper part of Jackpine river was too small for the canoes, so I was obliged to turn back. On the return trip my small canoe was

swamped, a suit case containing maps, instruments, &c., being lost.

Swan river flows into Lac Seul about ten miles southwest of Jackpine river. The first twenty miles of it is about parallel to Jackpine river, above which it flows from the north and northeast. One-half mile from the mouth of the river is Spruce lake, about five miles long and from one-half to three-quarters of a mile in width. Part way up the river are two smaller lakes, and about twenty-five miles from the mouth is Swan lake, about eight miles in length and one mile in width. Two miles above Swan lake, again, is Goose lake, which is nearly two miles in length. The river above here comes from the northeast and north. Swan river is easily driveable from above Goose lake, but has its many faults, the upper part being thickly lined on either side with overhanging alders and other small troes; the water, moreover, is very deep close to the banks, which would make it very hard for working along the shores. The rapids also make the river hard to drive, while the lake expansions will make a greater expense than any of the other obstacles, there being practically no current in them. The only way of crossing would be to boom the timber across with sail-boats or other similar means.

On the north bank of Swan river from the mouth to Swan lake, there is a strip of timber averaging three-quarters of a mile in depth. It contains an approximate area of nineteen square miles, or 12,160 acres, on which the timber will average 800 cubic feet per acre, or approximately 9,728,000 cubic feet on the total area. The stand consists of seventy per cent jackpine, with average diameter of eight inches, fifteen per cent of spruce with average diameter of seven inches, ten per cent of poplar with average diameter of eight inches, and five per cent of white birch with average diameter of six inches. Back of this strip, toward Jackpine river the country is entirely muskeg and scrub until it reaches the burn as seen on Jackpine river.

On the south side of Swan river there is a similar strip of about twenty square miles, or 12,800 acres, containing, approximately, 10,000,000 cubic feet. The stand is the same as on the north side of the river. South of this strip the timber is of poorer quality and will average only about 500 cubic feet per acre. As this area runs nearly to the shores of Lac Seul it will be put in when the timber on the north shore of that lake is estimated.

One mile above Goose lake on the Swan river is a strip of very good timber. It is about four miles in length and half a mile in width, thus having an approximate area of 1,300 acres. The timber runs 750 cubic feet per acre, or 975,000 cubic feet in all. The stand consists of eighty per cent of jackpine with average diameter of eight inches, ten per cent of spruce with average diameter of seven inches and ten per cent of poplar with average diameter of eight inches.

This takes in all the timber in this section, as a fire during the summer of 1910, burned over an immense area. This fire, coming from the west, crossed Swan river just where it flows out of Swan lake, and ran east to Jackpine river and Island's lake.

(This lake empties into Swan river above Goose lake). To the north the country is burned as far as could be seen from the top of a high hill on the north side of Swan lake.

On the Root river there is no timber except four small blocks. Two of these are just west of the mouth of the river. One contains about 400 acres and runs 450 cubic feet per acre, making a total of 180,000 cubic feet, whilst the other contains 150 acres, the timber running 300 cubic feet per acre, or a total of 45,000 cubic feet. About sixteen miles above here is another block of about 220 acres running 450 cubic feet per acre, or a total of 99,000 cubic feet. Five miles above this, again, there is another block of about 160 acres on which the timber runs 500 cubic feet, or a total of 80,000 cubic feet.

All the other merchantable timber on this river and the Dog river, which flows into the Root river about six miles from its source, has been burned by fires which swept through the country about ten or twelve years ago and also during the summer of 1910. These fires are the same as those which burned around Swan lake, Jackpine river and far to the north.

For driving, the Root river would be much the same as Swan river, except that

there are on it no lake expansions to speak of.

This completes the section of country east of Lac Seul post, except on the north shore of Lac Seul, which will be dealt with later. The total amount of timber found on this trip would be approximately, 24,371,000 cubic feet.

WENASAGA RIVER BASIN.

As it was impossible to get across the country from here, towards the Wenasaga river, it was necessary for both parties to return to Lac Scul post and proceed west from there. On the afternoon of July 16, I reached Lac Scul post, where I met Mr. Moodie, who had arrived a short time before me.

Upon our arrival at Lac Seul post we abandoned our two small canoes, as they were not large enough for the work such as crossing large lakes in stormy weather, running rapids, &c. To replace them I hired two larger ones from the manager of the Hudson's Bay Company's post at Lac Seul. This made it necessary to engage an

extra canoeman for each party, two more Indians being hired.

Our outfit being too large to move to the west end of Lac Seul in one trip by cance, I hired the Hudson's Bay Company's gasoline launch, which took us to the head of the English river on Saturday, July 22. I may say there was no time lost while waiting for the launch, as we were able to do some work from the camp at the

post, besides repacking all our supplies for moving.

Before starting out from our camp at the head of the English river, it was necessary to establish a base of supplies in the most central place possible. The Hudson's Bay Company's post, Mattawa, which had been moved from the English river to the upper end of Pakwash lake, was decided upon, as all the country north of there could be easily worked from that point. After taking out one month's supplies for each party, we moved the balance to Mattawa post, returning to the end of Lac Seul on July 27.

On the trip starting from here I gave Mr. Moodie the Wenasaga river and its

tributaries to work, while I took the Trout lake watershed.

The Wenasaga river is a good driveable river, but like the rivers travelled before it has its faults. It has a great many rapids and small falls, is very crooked with short bends, the banks are very low and thickly covered with small brush overhanging the water, which would catch and hold the logs. Then again there are many large lake expansions, which have practically no current in them. Thus the timber would have to be boomed across, by means of a launch or sailboats, which would add greatly to the expense of logging.

From the mouth of the river to within one mile of the mouth of Sandy Beach Narrows river, which flows into the Wenasaga river from the east, about five miles above Bluffy lake, there is absolutely no timber of any value. A great portion of this section was burned over probably eight or ten years ago; the remainder was burned during the summer of 1910, nothing now remaining except spruce and jackpine scrub.

From one mile below the mouth of Sandy Beach Narrows river and running up the Wenasaga river for three miles, the timber is good on both sides. There is a block here of about 4,500 acres, on which the timber runs 1,100 cubic feet per acre thus giving an approximate total of 4,950,000 cubic feet. The stand consists of forty per cent of jackpine with average diameter of seven inches, thirty per cent of spruce with average diameter of seven inches and thirty per cent of poplar with average diameter of eight inches. Above here there is nothing on the east side of the river except muskeg and scrub, until Slate lake is reached. On the west side a patch starts about one mile below the Oochi river, and extends to the lower end of Slate lake. It has an area of about 2,000 acres, on which the timber runs 650 cubic feet per acre, giving a total of 1,300,000 cubic feet. The stand consists of fifty per cent of jackpine with average diameter of seven inches, forty per cent of spruce with average diameter of seven inches and ten per cent of poplar with average diameter of nine inches.

On Slate lake a good block of timber is found, especially on the west side. On this side the timber extends the whole length of the lake and has an average depth of one mile. The approximate area is nine square miles, or 5,760 acres. The timber on it will run 1,300 cubic feet per acre, thus giving a total of 7,488,000 cubic feet. The stand consists of fifty-five per cent of poplar with an average diameter of nine inches, thirty per cent of jackpine with average diameter of seven inches, and fifteen per cent of spruce with average diameter of six inches. The poplar here is of good size, tall, straight and free from limbs.

On the east side of Slate lake the timber is more or less in patches, in some places being really good, while in others it is quite poor. This block runs the entire length of the lake, but is not much over half a mile in depth. It has an approximate area of 4,000 acres, on which the timber runs 800 cubic feet per acre, thus giving a total of 3,200,000 cubic feet. The stand consists of seventy-five per cent of poplar with average diameter of seven inches, fifteen per cent of spruce with average diameter of six inches and ten per cent of jackpine with average diameter of eight inches.

At the north end of Slate lake, running northeast towards Papaonga lake there is a block of good timber covering an area of about 2,000 acres. The timber on it runs 800 cubic feet per acre, giving a total of 1,600,000 cubic feet. The stand consisted of thirty per cent of poplar with average diameter of eight inches, thirty per cent of jackpine with average diameter of eight inches, twenty per cent of spruce with average diameter of seven inches and twenty per cent of white birch with average diameter of six inches.

For five miles up the river from Slate lake there is nothing but low musked covered with scrub. From here to Lake Margaret the timber was totally destroyed by fre during the summer of 1910. This burn reaches east to the cast end of Lake Sesikinaga.

On the west side of Lake Margaret there is a block of about 800 acres, on which the timber runs 600 cubic feet, thus giving a total of 480,000 cubic feet. The stand consists of eighty per cent of poplar with average diameter of eight inches, ten per cent of spruce with average diameter of seven inches and ten per cent of jackpine with average diameter of eight inches. On the east side of the lake is a block of 1,000 acres, on which the timber runs 550,000 cubic feet. The stand consists of sixty per cent of poplar with average diameter of eight inches, twenty per cent of jackpine with average diameter of seven inches, ten per cent of spruce with average diameter of seven inches and ten per cent of tamarack with average diameter of eight inches.

At the chutes there is another block of about 300 acres, on which the timber runs 800 cubic feet per acre, making a total of 240,000 cubic feet. The stand consists of forty per cent of poplar with average diameter of eight inches, twenty per cent of spruce with average diameter of seven inches, twenty per cent of jackpine with average diameter of eight inches and twenty per cent of tamarack with average diameter of eight inches.

With the exception of these three patches there is nothing to the head of the Wenasaga river, the country being low and marshy and thickly covered with scrub, jackpine and spruce. Around Lake Sesikinaga is all scrub, back from the lake being

all muskeg covered with small spruce and jackpine.

On the Papaonga river there is nothing except a block on the south side of the first lake, which has been dealt with from the north end of Slate lake. Location of these blocks on the map, as marked by Mr. Moodie, is all on south side of Papaonga

lake, not touching Slate lake at all.

There is nothing on Sandy Beach Narrows river until Little Sandy Beach Narrows lake is reached. On the south side of the lake there is a patch of about 1,000 acres. on which the timber runs 700 cubic feet per acre. This gives a total of 700,000 cubic feet. The stand consists of eighty per cent of balsam (black) poplar and twenty per cent of spruce. The north side of this lake was burned over in 1910. From here to the head of the river is all old burn and muskeg. Around Sandy Beach Narrows lake the country is very rough and rocky and covered with scrub.

On Loon river which flows into the upper end of Bluffy lake, there is nothing except one block on the south side of Loon lake, where the river flows in. This block has an area of about 400 acres, on which the timber runs 700 cubic feet per acre, giving a total of 280,000 cubic feet. The stand consists of seventy per cent of jackpine and thirty per cent of poplar, each having an average diameter of seven inches. Above here as far as could be reached by canoe, the country is rocky, rolling and covered with scrub jackpine, none over five inches in diameter. Between Loon lake and Bluffy lake is low and mostly muskeg.

On the upper part of the Oochi river there are two small blocks of very good timber. The first has an area of about 350 acres, the timber running 600 cubic feet per acre, giving a total of 210,000 cubic feet. The stand consists of forty per cent of poplar with average diameter of eight inches, thirty per cent of spruce with average diameter of seven inches and thirty per cent of jackpine with average diameter of eight inches. The other block has an area of about 300 acres, the timber running 600 cubic feet per acre, giving a total of 180,000 cubic feet. The stand consists of sixty per cent of poplar with average diameter of nine inches, thirty per cent of spruce with average diameter of eight inches and ten per cent of jackpine with average diameter of eight inches.

The Oochi river is driveable from Sucker lake to the mouth, above the lake being

very narrow and shallow.

Thus the total amount of timber found on the Wenasaga river would be approximately 21,178,000 cubic feet.

TROUT LAKE AND PAKWASH LAKES.

In working the Trout Lake watershed I went up the Wenasaga river, the Oochi river and then portaged over into Fly lake, which is the source of the chain of lakes, and Woman river, which flow into Trout Lake river. From around the head of Fly lake I started working the timber with the exception of the two blocks on the Oochi river, which I have already mentioned.

For the entire length of Fly lake and to the southwest corner of Clearwater lake the timber is very good. It is in a strip averaging one mile in depth on either side, back of which the entire country is muskeg or small rocky hills covered with scrub.

This block has an approximate area of sixteen square miles, or 10,240 acres. The timber averages 700 cubic feet per acre. The stand consists of seventy per cent of spruce with average diameter of seven inches, fifteen per cent of white birch with average diameter of six inches, ten per cent of poplar with average diameter of eight inches and five per cent of jackpine with average diameter of seven inches. There has been considerable tamarack through this section, but it is now all dead, having been killed about two years ago by worms or flies. On parts of this block the timber runs as high as 1,100 cubic feet per acre, while in a good many parts it will not average 500 cubic feet per acre.

On the east side of Clearwater lake there is a block containing about seven square miles, or 4,480 acres, of timber, which will run 600 cubic feet per acre, the total stand amounting to 2,688,000 cubic feet. The stand consists of sixty per cent of spruce with average diameter of seven inches, twenty per cent of poplar with average diameter of eight inches, ten per cent of jackpine with average diameter of eight inches and ten per cent of white birch with average diameter of six inches.

A new burn comes in at the southwest end of Clearwater lake, and extends north on the west side to the upper end of Washagomis lake. The southern boundary extends southwest towards Trout Lake river. From the top of a hill we could see beyond the valley of Woman lake and river, all of which has been burned over. From this north end of Clearwater lake on the east side, and from where the new burn stops on the west side, the country has all been burned over, probably twelve or fifteen years ago, there being nothing on it except scrub jackpine and small white birch. This continues north to where the river turns west. To the north of this chain of lakes and over the divide, the country has all been burned over, there being no timber for miles. The most northern lake of this chain is called Redcock lake.

On the east end of Redcock lake there is a block of very good timber covering an area of about 1,500 acres. The timber runs about 700 cubic feet per acre, thus giving a total of 1,050,000 cubic feet. The stand consists of sixty per cent of spruce with an average diameter of seven inches, fifteen per cent of poplar with average diameter of eight inches, fifteen per cent of white birch with average diameter of six inches, five per cent of jackpine with average diameter of seven inches and five per cent of balsam fir with average diameter of six inches. This is the first balsam fir I have seen since the work started and it is very poor. The large spruce in this section is either dead or has been thrown by the wind.

Turning west at Redcock lake and working towards the head of Woman lake, there is no timber, the country being all muskeg or old and new burn. The timber on both sides of Woman lake and river has all been burned right down to the junction with Trout Lake river. This is the same burn as seen on the west side of Clearwater lake.

A portage of sixteen chains took us from the north end of Woman lake into Narrow lake. The only timber found around this lake is on the north side about five miles along the lake. The quality of the timber is just fair, being small and in patches. This strip is one and one-half miles in depth, thus giving an approximate area of 5,000 acres. The stand runs 550 cubic feet per acre, or a total of 2,750,000 cubic feet. The stand consists of fifty per cent of spruce with average diameter of seven inches, thirty per cent of jackpine with average diameter of seven inches, ten per cent of poplar with average diameter of eight inches and ten per cent of white birch with average diameter of five inches. To the north of this the country is all burned over. On the south side of Narrow lake from Woman lake west to Trout lake has all been burned. The north side, from where the above mentioned block of timber stops, has all been burned. This burn also reaches to the east side of Trout lake, and north for miles.

From the west end of Narrow lake, a portage two and a quarter miles in length nearly due north brought us into a small lake which flows into the east side of Trout

lake. This portage, the entire length of which was through burn, had to be cleared out before it could be used. Around the above lake and west to Trout lake is all burn

and muskeg.

Around the north side of Trout lake the timber is quite poor. The country is very rocky, with practically no soil. Thus the timber is small except in a few places. It is quite thick, but the larger trees have been thrown by wind. On the east side of the largest bay on this side of the lake there is a patch of about 3,000 acres, the timber running 600 cubic feet per acre, or giving a total of 1,800,000 cubic feet. The stand consists of eighty per cent of spruce with average diameter of six inches, fifteen per cent of jackpine with average diameter of seven inches and five per cent of poplar with average diameter of eight inches. Back of this strip is all muskeg and scrub. At the north end of this bay, a burn of 1910 comes into the lake shore. This burn comes in from the west and leaves a strip of timber as far as the northwest corner of the lake. This strip has an area of about 6,000 acres, on which the timber averages 500 cubic feet per acre, thus giving a total of 3,000,000 cubic feet. The stand is practically the same as on the east side of the bay.

The northern part of Trout lake is thickly studded with islands, the larger ones

having been burnt over, the smaller ones being low and covered with scrub.

On the west side of the lake the timber is better than on the north side. There is a block here of approximately 4,200 acres, the timber running 900 cubic feet per acre, thus giving a total of 3,780,000 cubic feet. From the end of this block and on south is another block of about 1,800 acres, the timber running 750 cubic feet, thus giving a total of 1,350,000 cubic feet. The stand consists of eighty per cent of spruce with average diameter of seven inches, ten per cent of jackpine with average diameter of eight inches, ten per cent of white birch with average diameter of eight inches and ten per cent of white birch with average diameter of six inches.

On the point on the south side of the lake and just east of Cat island, the timber runs about 500 cubic feet per acre. Parts of it are poor through having been thrown a great deal by the wind. This block has an approximate area of 3,200 acres, thus giving a total of 1,600,000 cubic feet. The stand consists of eighty per cent of spruce with average diameter of seven inches, ten per cent of jackpine with average diameter of seven inches and ten per cent of poplar with average diameter of eight inches.

The long point on the east side of the lake has some good timber on it. The block has an area of about 5,000 acres, the timber running 800 cubic feet per acre, giving a total of 4,000,000 cubic feet. The stand consists of spruce and jackpine, forty per cent of each with average diameter of seven inches, ten per cent of poplar with average diameter of eight inches and ten per cent of white birch with average diameter of six inches.

On the south side of Trout lake, east of the river, there is a strip which runs down along the river and to the lower end of Otter lake. It contains about 2,000 acres, and the timber runs 500 feet per acre giving a total of 1,000,000 cubic feet. The stand consists of sixty per cent of spruce with average diameter of six inches, twenty per cent popular with average diameter of seven inches, fifteen per cent white birch with average diameter of six inches and five per cent of jackpine with average diameter of seven inches.

Outside of these blocks the timber around Trout lake has all been burned over,

from one to eight years ago.

Along Trout Lake river the timber has all been burned except two small blocks. The first at the junction of Woman river, contains about 600 acres. The timber runs 650 cubic feet per acre, giving a total of 390,000 cubic feet. Jackpine forms about seventy per cent of the stand with an average diameter of nine inches, spruce ten per cent with average diameter of seven inches, poplar ten per cent with average diameter of eight inches and white birch ten per cent with average diameter of six inches. The other block is on the east side of the river about four or five miles from the mouth.

It has an area of about 125 acres, the timber runs 1,000 cubic feet per acre, giving a total of 125,000 cubic feet. Poplar forms eighty per cent of the stand with average diameter of eleven inches, while jackpine makes up the remainder with average diameter of eight inches.

Trout Lake river can be easily made driveable, both from the head of Fly lake and from Trout lake. There are a number of rapids and falls on this river, one sixty feet high, but these would not be so hard to contend with as the lake expansions.

On August 25 I arrived at Mattawa post where I met Mr. Moodie, who had arrived some time before me.

On Upper Pakwash lake there is no merchantable timber at all, the country being very rocky and covered with scrub.

On the west side of Lower Pakwash lake, there is a small block of timber containing an area of approximately 850 acres. The timber runs 700 cubic feet per acre, giving a total of 595,000 cubic feet. The stand consists of seventy-five per cent of poplar running from four to sixteen inches in diameter, fifteen per cent of spruce running from four to eighteen inches in diameter, and ten per cent of jackpine from six to thirteen inches in diameter.

One mile due east of Pakwash lake and east of Mattawa post, there is another block of about 640 acres. The timber runs 750 cubic feet per acre, giving a total of 480,000 cubic feet. The stand consists of sixty-five per cent of poplar four to twenty inches, twenty per cent of jackpine from six to seventeen inches and fifteen per cent of spruce from four inches to seventeen inches.

The total amount of timber located on the Trout Lake watershed and Pakwash lakes would be approximately 31,776,000 cubic feet.

RED LAKE AND GULLROCK LAKE.

From Mattawa we divided the remainder of the territory into two parts, Mr. Moodie taking the Gullrock lake and Red Lake watersheds, while I took a stream flowing into the southwest corner of Gullrock lake, the Medicine-stone lakes, the Longlegged river and the north bank of the English river. On the completion of these parts, Mr. Moodie worked the north side of Lac Seul from the Wenasaga river east to the Manitou river, and I worked that part between the Manitou river and the Hudson's Bay post at Lac Seul.

Mr. Moodie started on his section on August 28 working north to the divide on the north side of Red lake.

Along Red Lake river from Pakwash lake to Gullrock lake the country is very low and swampy in many places. What timber there is along the river is very scattered and in small patches, the location, quantity and quality of which will be shown on the map.

The country around Gullrock lake has all been burned over except the south end of the lake. There is a block of good timber on this side just west of where the river flows out of the lake. It has an approximate area of 2,500 acres, the timber running 850 cubic feet per acre, or a total of 2,125,000 cubic feet. The stand consists of forty per cent of spruce with average diameter of seven inches, forty per cent of jackpine with average diameter of eight inches and twenty per cent of poplar with average diameter of eight inches. The rest of the south side is very rocky and covered with scrub.

The fires which destroyed the timber around Gullrock lake occurred, some in 1910, and the others probably about twelve years ago.

The timber along the river from Gullrock lake to Red lake is very poor except in small patches. These consist of small poplar which is very scattered and has an average diameter of only five inches.

Around Red lake there are some blocks of very good timber, although the greater part of the country has been burned over. At the southeast end of the lake there is a block containing about 3,000 acres. The timber runs 950 cubic feet per acre, making a total of 2,850,000 cubic feet. The stand consists of eighty per cent of poplar with diameter from four to twenty-one inches, ten per cent of jackpine from four to sixteen inches and ten per cent of spruce from four to eighteen inches.

About two miles north of this block on the east side of the lake is another block of about 1,500 acres. The timber runs 750 cubic feet per acre, giving a total of 1,125,000 cubic feet. The stand consists of fifty per cent of jackpine with diameter from six to seventeen inches, thirty per cent of spruce from six to fourteen inches and

twenty per cent of poplar from four to thirteen inches.

North of this again, about two miles, is another block which extends east to the south end of East bay. It has an area of about 3,500 acres, on which the timber runs 1,100 cubic feet per acre, giving a total of 3,850,000 cubic feet. The stand consists of sixty per cent of poplar with average diameter of ten inches, twenty per cent of spruce with average diameter of seven inches and twenty per cent of jackpine with average diameter of eight inches.

On the south side of the narrows near the northeast end of the lake, is a block of 800 acres. The timber runs 550 cubic feet per acre, giving a total of 440,000 cubic feet. The stand consists of eighty per cent of spruce with diameter from four to twenty-four inches, ten per cent of jackpine with diameter from four to sixteen inches and ten per cent of tamarack with diameter from seven to eighteen inches. On the north side of the narrows there is another block containing approximately 9,600 acres. The timber on it runs 850 cubic feet per acre, making a total of 8,160,000 cubic feet. The stand consists of fifty per cent of poplar with diameter from four to twenty-six inches, thirty per cent of spruce diameter from four to twenty-two inches, fifteen per cent of jackpine with diameter from four to twenty inches and five per cent of tamarack from seven to seventeen inches.

Another block between the northeast corner of Red lake and the west side of East bay contains an area of about 1,200 acres. The timber runs 800 cubic feet per acre or a total of 960,000 cubic feet. The stand consists of seventy-five per cent of poplar with diameter from four to twenty-two inches, fifteen per cent jackpine with diameter seven to sixteen inches and ten per cent of spruce with diameter from four to nineteen inches.

There is a narrow strip on both sides of the river between Red lake and Little Vermilion lake, which would have an approximate area of 700 acres. The timber runs 700 cubic feet per acre or a total of 490,000 cubic feet. The stand consists of eighty-five per cent of poplar with diameter from four to twenty inches, ten per cent of jack-pine from six to eleven inches and five per cent of spruce from four to fourteen inches.

At the southeast end of Little Vermilion lake there is a block of about 600 acres. The timber runs 650 cubic feet per acre, giving a total of 390,000 cubic feet. The stand consists of eighty per cent of poplar with diameter from four to twenty-four inches, fifteen per cent jackpine from six to fourteen inches and five per cent of spruce with diameter from four to seventeen inches.

The country north of here up to the north end of Rat House lake was burned over about twelve years ago, while to the north, east and west from Rat House lake, as far as the divide, the timber was all burned during the summer of 1910.

There the three other small blocks of fair timber around Red lake. One is on the south side of the lake, southwest of Mackenzie island. It has an area of about 700 acres, on which the timber runs 600 cubic feet per acre, giving a total of 420,000 cubic feet. The stand consists of forty-five per cent of jackpine with diameter from six to seventeen inches, forty per cent of poplar from four to twenty-one inches and fifteen per cent of spruce from four to eighteen inches. The other two blocks are at the west end of the lake, on the shores of Pipestone bay. One on the northwest corner of the

bay has an area of 450 acres. The timber runs 450 cubic feet per acre, giving a total of 202,500 cubic feet. The stand consists of eighty per cent of poplar with diameter from four to sixteen inches, ten per cent of spruce from four to fourteen inches and ten per cent of jackpine from six to twelve inches.

The other block is at the southeast end of Pipestone bay. It has an area of about 320 acres, on which the timber runs 500 cubic feet per acre, thus giving a total of 160,000 cubic feet. The stand consists of ninety-five per cent of poplar with diameter from four to eighteen inches and five per cent of jackpine with diameter from six to fourteen inches.

All the other country around Red lake has been burned over some time or other, there being no merchantable timber on it at all, and from the rocky condition of the country, which has practically no soil, there is very little prospect of there being any timber for years to come even on the older burns.

On the west side of Keg lake there is a small block of very good timber. It has an area of 400 acres, the timber running 650 cubic feet per acre, thus giving a total of 260,000 cubic feet. The stand consists of ninety-five per cent of poplar with diameter from four to sixteen inches and five per cent of jackpine with diameter from six to twelve inches. On the north side of Keg lake and on the east side of the river is another block of about 320 acres. The timber on it runs 450 cubic feet per acre, giving a total of 144,000 cubic feet. The stand consists of sixty per cent of poplar with diameter from four to fourteen inches, thirty per cent of jackpine, diameters from six to seventeen inches and ten per cent of spruce, diameters from four to eleven inches

The river between Red lake and Gullrock lake has very little current. It is deep and very crooked, while both sides are very weedy, which would make it hard for driving. From Gullrock lake to Pakwash lake the river has a very good current. There are four rapids on it, only one of which would retard the work of driving it.

On the 29th of August I left Mattawa post and travelled to the southwest corner of Gullrock lake and started up a small river which flows into the lake there. This river has its source near the waters flowing into Medicine-stone lakes. I worked up this river to the head, thence across into the Medicine-stone lakes and then north to Red lake. Through this section there is practically no merchantable timber, nearly all having been burned, some quite recently, the rest from twenty-five to thirty years ago.

About half a mile up the river from Gullrock lake on the south side of Grassy lake, there is a small area of about 125 acres. The timber on it runs 900 cubic feet per acre, giving a total of 112,500 cubic feet. The stand consists of sixty per cent of jackpine with average diameter of eight inches, fifteen per cent of spruce with average diameter of seven inches, fifteen per cent of poplar with average diameter of nine inches and ten per cent of white birch with average diameter of six inches. Back of this and on top of the ridge is scrub jackpine and white birch. On the other side of the ridge it slopes back into lowland and muskeg. On the north side of Grassy lake, a burn of 1910 has destroyed all the timber. For two miles above this lake, it is all muskeg or rocky hills covered with scrub. Here the burn of 1910 comes into the river again and extends to about half way up Bug lake. From here to the head of Bug lake on the south side was burned over about eight or ten years ago. The section of country from Bug lake over to Medicine-stone lake is all muskeg, there being no merchantable timber whatever on it. The river from Grassy lake to Bug lake could not be made driveable, for at its best it is hardly large enough for a nineteen-foot canoe.

The country around the Medicine-stone lakes and north to the south side of Red lake was all burned over, I should say between twenty-five and thirty years ago. This whole section is now covered with scrub jackpine, none of it reaching thirty feet in

height and six inches in diameter. The burn of 1910 comes in on the east side of that lake, which is situated just south of Red lake.

Medicine-stone lakes are surrounded by quite high rocky hills, and in paddling along the lake the bare rock is plainly seen, the scrub on it being so scattered. The river flowing out of the lake is also far too small for driving.

Finishing this section I came out on to Red lake and thence down Red Lake river

to Mattawa post.

The total amount of timber located on the Gullrock Lake and Red Lake watersheds would be approximately 21,689,000 cubic feet.

WEST OF LAC SEUL.

On reaching Mattawa post I found that we had not supplies enough to do us while finishing this section of the country; therefore, it was necessary for me to go in to Lac Seul post for more provisions. Returning from there I went down the English river and worked up Long-legged river to its head. From the mouth of this river up to the middle part of Long-legged lake has been completely burned, a fire going through it about eight or ten years ago, while another in 1910 burned over a large area of it again.

The upper part of Long-legged lake is very much the same as around Medicinestone lakes, having high rocky hills around it, which are covered with scrub, there

being insufficient soil to sustain the timber.

On finishing this river I came back down it and then worked the north side of the

English river to the foot of Lac Seul, where there is some very good timber.

From the mouth of Long-legged river to about half way up Barnston lake there is a strip averaging one mile in depth. It has an approximate area of 11,500 acres, on which the timber runs 850 cubic feet per acre, giving a total of 9,775,000 cubic feet. The stand consists of sixty per cent of poplar with average diameter of eight inches, twenty-five per cent of jackpine with average diameter of seven inches and fifteen per cent of spruce with average diameter of seven inches.

From here to where the long pertage goes across to the lower end of Duck lake, the timber will run 900 cubic feet per acre. There are about 4,200 acres in this area, giving a total of 3,780,000 cubic feet. The stand consists of the same species as in

the last section, the quality being practically the same.

On the point where the portage crosses to Duck lake there is a block of about 1,200 acres, on which the timber runs 1,300 cubic feet per acre, giving a total of 1,560,000 cubic feet. The stand consists of sixty per cent of poplar with average diameter of eleven inches, twenty per cent of jackpine with average diameter of nine inches, fifteen per cent of spruce with average diameter of eight inches and five per cent of red pine with average diameter of twelve inches.

From here to the mouth of the river flowing out of Pakwash lake, there is a block of about 3,600 acres, where the timber runs 900 cubic feet per acre, giving a total of 3,240,000 cubic feet. The stand runs the same as farther down the river. In some places the timber reaches back for nearly two miles from the river, in other places not

much over half a mile. Back of this is low wet country covered with scrub.

There is a strip on both sides of the river between Pakwash lake and the English river. The total area would be approximately 7,000 acres, on which the timber runs 650 cubic feet per acre right through, thus giving a total of 4,550,000 cubic feet. The stand consists of seventy per cent of poplar with average diameter of nine inches, fifteen per cent of jackpine with average diameter of eight inches and fifteen per cent of spruce with average diameter of seven inches.

From the head of Duck lake to within one mile of the west end of Lac Seul, the timber is not quite so good as further down the English river. It will run about 650 cubic feet per acre, of which there is approximately 9,000 acres, thus making a total

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of 5.850,000 cubic feet. The stand consists of seventy-five per cent of poplar with average diameter of seven inches, fifteen per cent of jackpine with average diameter of seven inches, and ten per cent of spruce with average diameter of seven inches. From the end of this timber to the head of the river is either small scrub or burn.

Between the head of the English river and the Wenasaga river, there is a block of about 800 acres. The stand will run 850 cubic feet per acre, making a total of 680,000 cubic feet. The stand consists of fifty per cent of poplar with average diameter of nine inches, and fifty per cent of spruce with average diameter of seven inches.

On the territory covered on this trip the total quantity of timber would be approximately 29,435,000 cubic feet.

NORTH SIDE OF LAC SEUL.

From here I moved east to the mouth of the Manitou river, where I met Mr. Moodie, who was working the north side of Lac Seul from the Wenasaga river east to this point.

Starting from the Wenasaga river and working east along the north side of the lake, Mr. Moodie describes the timber in the following way:—From the mouth of the Wenasaga river there is a strip which runs east for about twelve miles along the lake. It has an average depth of three miles and an approximate area of 25,000 acres. The timber on it runs about 900 cubic feet per acre, giving a total of 22,500,000 cubic feet. The stand consists of fifty per cent of poplar with diameter from four to eighteen inches, twenty-five per cent of spruce with diameter from four to sixteen inches, fifteen per cent of jackpine, with diameter from six to fifteen inches, and ten per cent of white birch with diameter from four to eight inches.

From here east for about four miles or to Big Inlet on the north side of the lake, there is nothing but scrub. Along the northwest side of this inlet there is a strip of timber which will run 800 cubic feet per aere. It has an approximate area of 6,500 acres. The timber on it runs about 800 cubic feet per acre, giving a total of 5,200,000 cubic feet. The stand is the same as on the last area.

Around the east side of Big inlet and along the lake, to the mouth of the Manitou river, there is no timber of any commercial value, the country being rocky and covered with scrub.

On the lower part of the Manitou river there is no timber of any value. On the west side of Manitou lake there is a tract of very good timber. This block crosses the river just below the lake and runs south towards Lac Seul for about six miles. It has an area of about 7,000 acres on which the timber runs 950 cubic feet per acre, thus giving a total of 6,650,000 cubic feet. The stand consists of forty per cent of poplar with diameter from five to sixteen inches, thirty per cent of jackpine with diameter five to fourteen inches and thirty per cent of spruce, with diameter from five to twelve inches.

In the interior of the country between the Wenasaga river and the Manitou river, there is a large area of timber which is of much poorer quality than that near the lake. This section would cover an area of probably 225 square miles or 144,000 acres, on which the timber should average 600 cubic feet per acre throughout, thus giving a total of \$6,400,000 cubic feet. The stand consists of poplar, jackpine, spruce and white birch running from four to sixteen inches in diameter.

This completed Mr. Moodie's territory with the exception of some on the north side of the lake, east of the Hudson's Bay Company's post.

Starting just east of the mouth of the Manitou river, I worked that section east to the Lac Seul post and as far inland as it was possible to reach. I ran lines back at frequent intervals, which ranged from three to eight miles in length. Near Lac-

Seul post I found an old transit line which ran due north and followed it for nearly nine miles to a large lake, where I had to turn back, as it was impossible to get across.

The timber close to Lac Seul is much better than farther inland, as there is a strip between the Manitou river and Lac Seul, on which the timber is very good. This strip averages about two miles in depth, and will have to be divided into about five blocks on account of the difference in quality of the timber.

The first block east of the mouth of the Manitou river has an approximate area of 4,200 acres on which the timber runs about 1,200 cubic feet per acre, giving a total of 5,040,000 cubic feet. The stand consists of forty per cent of jackpine with average diameter of eight inches, fifteen per cent of poplar with average diameter of nine inches, fifteen per cent of white birch with average diameter of seven inches, and ten per cent of red pine with average diameter of twelve inches.

Next to this block and east is another on which the timber runs 1,050 cubic feet per acre. It has an approximate area of 8,000 acres, with a total of 8,400,000 cubic feet. The stand consists of thirty per cent of jackpine with average diameter of eight inches, twenty-five per cent of poplar with average diameter of nine inches, twenty-five per cent of white birch with average diameter of seven inches and twenty per

cent of spruce with average diameter of eight inches.

The third block along the lake here has an area of about 7,500 acres, on which the timber runs 1,100 cubic feet per acre, thus giving a total of 8,250,000 cubic feet. The stand consists of thirty per cent of jackpine with average diameter of eight inches, thirty per cent of poplar with average diameter of nine inches, twenty per cent of spruce with average diameter of seven inches and twenty per cent of white birch with average diameter of six inches.

The next block has an approximate area of 4,500 acres on which the timber is somewhat better. It will run about 1,300 cubic feet per acre, thus giving a total of 5,850,000 cubic feet. The stand consists of forty per cent of poplar with average diameter of nine inches, thirty per cent of jackpine with average diameter of eight inches, twenty per cent of spruce with average diameter of eight inches and ten per cent of

white birch with average diameter of six inches.

The fifth and last block along the lake reaches to within about one mile of the Hudson's Bay Company's post, Lac Seul. It is the smallest block of the five and the timber is poorer, having been culled by the Hudson's Bay Company's people and the Indians, for wood, &c. It has an area of about 2,200 acres, on which the timber runs 800 cubic feet per acre, thus giving a total of 1,760,000 cubic feet. The stand consists of thirty per cent of jackpine with average diameter of eight inches, thirty per cent of poplar with average diameter of eight inches, twenty per cent of spruce with average diameter of seven inches, fifteen per cent of white birch with average diameter of six inches and five per cent of red pine with average diameter of ten inches.

Back of the above strips and running north for about sixteen miles, there is a large area, which I could not reach except for short distances on the different sides. North of Lac Seul post I ran through it for over eight miles, while in other places I ran lines from one to four miles back into it. The timber on parts of it is very good, while in other places it seems to get to a certain size and then dies. There is an area east of the Manitou river and reaching north from Lac Seul nearly to Swan river, which would have an area of approximately 250 square miles, or 160,000 acres. On this area from what I covered I would judge the timber to run about 700 cubic feet per acre all through, thus giving a total of approximately 112,000,000 cubic feet. The stand is made up of jackpine, spruce, poplar and white birch, but it would be hard to give the percentage of each species. The trees run from four to fourteen inches in diameter, the larger ones being badly thrown by the wind. This completed my section of the territory on the north of Lac Seul.

Mr. Moodie worked a section east of Lac Seul post, while I was in Winnipeg getting money to pay off the canoemen. The timber runs along the edge of the lake

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from about a mile east of the post for nearly twenty miles or about two miles east of Tugtegweick river. It has an average depth of one mile. The total area of the strip would be approximately 13,000 acres, or a little over twenty square miles. The timber runs about 800 cubic feet per acre throughout, giving a total of 10,400,000 cubic feet. The stand consists of about eighty per cent of poplar from four to twelve inches in diameter and twenty per cent of spruce and jackpine from five to fourteen inches in diameter.

The total amount of timber estimated on the north side of Lac Seul from the Wenasaga river east, and for about sixteen miles north from the lake, is approximately

272.450,000 cubic feet.

The figures included herein, together with about 4,000,000 cubic feet of timber shown in small blocks on the map, would give a total for the whole territory covered, of, approximately, 405,000,000 cubic feet. This, it will be noticed, is a very small amount for the size of the territory covered. I may say in the first place that the country does not seem to have ever been really heavily wooded. It is a very rolling country with numerous patches of muskeg running through it, besides a great many rocky hills, none of which rise to any great height. There seems to be very little soil except close to the water, where it seems to be dried out for about one to three miles back, while away inland as a rule it is very swampy. Where a fire has run through, one will invariably find nothing but the naked rock, which goes to show there was never much soil. Thus there is nothing to sustain the tree after it gets to a certain size.

Besides a large amount of the country being muskeg and marsh, an enormous area, especially the northern part, towards the divide, has been burned over at some time or other. Some of the fires occurred probably twenty-five or thirty years ago, while a very large area was burned over during the summer of 1910. These fires are due mostly to the carelessness of the Indians, who do not seem to realize that by destroying the forest they are taking away their own livelihood, as they depend almost

solely on the fur which they catch during the winter months.

They roam around during the summer hunting moose, &c., and leave fires wherever they happen to be, and until the country is opened up and the white people get in, it will be next to impossible to keep them from destroying the timber.

Respectfully submitted,

J. W. CURRY.

No. 30.

REPORT OF GEO. A. MULLOY.

FORT SMITH, ALBERTA, June 20, 1911.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa.

SIR,—I beg to submit a report of work done by my assistant, L. Boyd, and myself during the past month. I arrived at Fort Smith on June 8, and immediately made arrangements for a trip to the northern herd of wood bison, called the Salt river herd. I was advised that the country was almost impassable at this time of the year owing to the great quantity of water in the muskegs and hay-meadows. The rivers also cannot be forded in the usual way, but have to be crossed by means of rafts built on the spot. In addition to this the flies are very numerous and worry the pack animals,

making them unmanageable at times. However, I decided to make a preliminary trip covering as much ground as possible and getting an idea of the lay of the country as well as learning some of the main trails. I think I cannot do better than to give you a resumé of my diary for the fourteen days we were away from headquarters.

Monday, June 12.—The morning was taken up in the usual delays peculiar to any trip of this kind. We got started, however, at 1.25 p.m. The first stage of our trip will be to the Salt river Indian settlement which is near the mouth of the Salt river. We intend following the trail cut by the mounted police, accompanied by Mr. H. V. Radford, last October. We have two pack horses and an Indian guide, but, fearing to pack the horses too heavily, we are travelling light, taking food for only two weeks.

We travelled eight or nine miles before sundown, i.e., from Fort Smith to the bend in the Slave river opposite Big island. There is a good wagon trail so far, and the land is high and dry. The country through which we have come is very much better than that around Fort Smith. The sandy jackpine ridges begin to run out about two or three miles west, and open poplar ridges and spruce groves make their appearance. The trail for the last two or three miles follows the bank of the Slave river very closely. The valley of the river here is 100 to 150 feet high and a mile or more in width. The timber through which we passed to-day would not do for saw-mill purposes, the spruce of any size, say, fifteen to twenty inches diameter being so scattered and scarce and the poplar so small that its only use would be for building log houses, fences, corrals, &c. The land, however, is much better than at Fort Smith. The soil would be classed as a light sandy loam, and I think would be suitable for light farming. Oats would do well, other conditions favourable.

Tuesday, June 13.—Last night the flies were very bad, and the horses ran away with the hobbles on. The remainder of the wagon road to the Salt river settlement is very good. The land, however, changes in character a couple of miles from the settlement. Low swampy ground takes the place of poplar ridges. This is covered with a dense growth of scrub, jackpine, willow and alders. We crossed Salt river in a boat carrying the packs and swimming the horses. The river at this point is not salty, as we had supposed. Both the animals and ourselves drank it, and the guide says they use it all year round.

Here, too, is one of the great fishing grounds of this part of the country. The current is moderately swift and the river fifty yards wide. Just here one of our pack-horses showed signs of giving out, but, as we could not get another and the Indian village was deserted, we decided to go on with him.

After dinner we headed due west again. For some distance west of the settlement open glades of parklike hay-meadows are encountered. The grass here is excellent, and the alders are bunched and clumped together, dividing the country into small fields. The footing is rather damp, but the wiry grass holds up the horses as well as the men. This hay-meadow country stretches for about a mile. Then the ground rises. Here a peculiar piece of land is encountered, i.e., a large field of excellent grass surrounded by a dense growth of poplar. It looks like a small farm and some Indian has taken advantage of the opportunity, and dug up a large patch with a spade. He had planted potatoes, but they were not up yet. However, we discovered, when we returned, that they had grown five or six inches in our absence. This piece of open land is an excellent place for the Government Experimental Farm as it is close to Fort Smith and the soil cannot be excelled. It has a dark, rich mould to a depth of five or six inches with a sandy subsoil. In fact, this character of soil continues for a distance of four or five miles westward. The forest, however, changes in appearance. For miles on both sides of the trail stretch open poplar uplands. The ground is very level and covered with a dense growth of good grass, but the white trunks of the poplar seem like a forest of white-washed telegraph poles. No underbrush of any

account is met with. Sparsely scattered through the poplar are individual spruce trees of very fair size twelve to twenty inches in diameter and very tall. The poplar, although not large, is very uniform, running about fifteen inches. We travelled until dark and camped on a rather marshy place beyond the poplar country.

Wednesday, June 14.—The first part of to-day's journey was through the largest hay-meadows we have yet encountered. They are in the valley formed by Salt mountain on the west and the poplar ridges bordering Salt river on the east. Where the trail intersects them, they are about one mile in width and from Salt mountain they can be seen for fifteen or twenty miles stretching northeasterly. Salt mountain is a low range of hills 100 feet above the surrounding country. They form the western slope of the watersheds of the Little Buffalo river. Although on the lookout for salt deposits, none of any account were seen near the trail. Several small salt streams and sloughs occur, however, in the muskeg bordering the hills. Salt mountain is very rough and rocky, and is covered with a growth of scrub, jackpine, spruce and poplar mixed. No timber of any size. A peculiar thing is here noticed. Depressions appear in the earth varying in size from three feet diameter to the size of a large house. They have three or four flat sides and converge to a sharp peak at the bottom. No inlet or outlet can be found, but no water of any account is found. The country has the appearance of having been covered by hugh blocks of sharp-cornered ice which have melted away and left their shapes in the earth. We travelled until dark again and camped on the eastern slope of the mountain.

Thursday, June 15.—This morning the guide left the main trail and struck across country to a more northern trail which we found out later was the winter trail for dogs coming from the Salt river and which winds up through the hay meadow on the east side of Salt mountain. This, of course, is a good trail in winter, avoiding Salt mountain altogether. We will likely make use of it ourselves. This new trail we marked and blazed well. The country is becoming more and more swampy as we near the Little Buffalo river. Poplar, of course, predominates, but none of any value is seen. I found an old bison horn, the first sign of this animal we have seen. From here to the Little Buffalo river the country becomes more and more swampy. Dense scrub growth of all kinds impeded our passage, and, on account of the great depth of water on the trail, long detours had to be made, necessitating the cutting of a new trail in many places. One of our horses got mired here, and we had to carry his pack for the rest of the distance to the river. The Little Buffalo is a typical muskeg river, with very low or hardly any banks, with a swift current and yellow-coloured water. At this place it is only fifty to seventy-five feet wide, and at this time of the year is too deep to ford. Owing to this fact and also to the condition of the horses we camped here early.

Friday, June 16.—This morning we crossed the river. The guide, with our assistance, made a raft and on this we carried the packs over as well as ourselves. The horses were made to swim over. The least said about to-day's travel the better. It is just a continuation of the kind of country on the east side of the river. This whole country between the Little Buffalo river on the east and the three rivers shown on Mr. Radford's sketch is one big swamp—particularly so just before we come to the first river. There are innumerable small ponds, separated only by narrow necks of grass and matted willow-roots in which the animals sink shoulder-deep and which quakes and gives underfoot most alarmingly. Both the horses got mired and had to be hauled out with ropes. Shortly before Seton creek is reached, however, poplar ridges again make their appearance and on the first of these we made camp late at night.

Saturday, June 17.—A hard day. With an early start and with the guide under the impression that we want to go as far and as fast as possible, we plunge once more into water knee-deep. Although covered with water, the trail here has a firm bottom. Muskeg, however, prevails. We crossed three rivers, evidently those marked on Rad-

ford's map. They are not deep and only twenty to thirty feet wide, but the current is very swift and fording them at this time of the year is very difficult. About noon the guide discovered the first buffalo track. Then a day-old track is seen, and we press on with renewed vigour, hoping to see some before the day closes. This certainly is the best day's travelling we have done. Late at night we made camp on a poplar ridge near where the guide says there are many beaver ponds. In fact this animal seems very numerous up here, as we have seen fresh signs everywhere we went, more particularly near the rivers. This may account for much of the wet land here as the beaver are wont to run wing-dams and flood the country adjoining the rivers. I will look into this another time. I may add that, as this is the rainy season, it rained, as usual, all day.

Sunday, June 18.—At last there is a change in the character of the country. Big reaches of jackpine of fair size fifteen to twenty inches in diameter and numerous stretches of straight poplar of the same size are encountered everywhere. The spruce also begins to show itself, and although no really good spruce timber country is encountered, wherever it does appear it is very large, thirty inches or more in diameter. Then the buffalo signs begin to appear on every hand. Immense wallows surrounded us. The ground and trail are pitted with them. Fresh tracks are seen in many of the wallows and soft places and many of the tree trunks near the trail are used by the buffalo as scrubbing posts. On these much hair was hanging. This country is certainly a good range for stock of any kind. The buffalo, I imagine, use it as a winter or spring feeding-ground. The grass is luxuriant and there is plenty of shelter in the winter. The timber remains practically the same throughout the day's travel. In one place a huge whirlwind had made a big clearing several acres in extent. Fires, however, have been very rare, as no brulé or windfalls are seen at all. Early in the afternoon the guide lost the worn trail, and, as we were in the good buffalo country and our time limited on account of food, we decided to press on, following a well beaten buffalo trail. This trail had evidently been used very long and also very recently. One could easily see it was made by some wild animal because where the grass was poor it was straight and narrow and where the feeding was better it was very scattered and indistinct. Here we saw the first and only bison seen on the trip. He (an old bull) was standing in a big wallow fighting flies, and, although we used no particular caution in approaching him, he did not seem to notice us. We were able to get within thirty or forty feet of him. We watched him for some time and then he turned his head and saw us. He made off at a surprisingly fast pace considering his size and the lumbering way in which he travelled. He had probably been driven away from the herd by the younger bulls. He was not fat, although rich feed was on every hand.

Monday, June 19.—To-day as our grub was running low, we decided to track buffalo in this locality. The guide had no difficulty in striking the trail of a band going northwest from a small slough near our camp. Very soon we came out of the swamp into open country. Huge hay-meadows appear and patches of typical prairie land, dotted and divided by clumps of alders. These alders grow to the height of ten to fifteen feet and are sometimes as thick as one's wrist. This part of the country, the guide says, is the border of the great northwestern bison range. From this point westwards and northwards around Buffalo lake and river the country is all prairie. Of course, this is Indian information and, as we were not able this trip to penetrate so far. I will not vouch for the truth of it.

All day, although cold and raining constantly, we followed the trail we had struck in the morning. Here were tracks of six grown animals and one calf, but, as they were travelling with the wind, which was blowing northwest, and consequently scented us a long distance away, we did not come up with them, although we made many long detours endeavouring to head them off. Some of the Indians say that all the bison

in this district go further west during the summer months, but Constable W. Johnston, of the R.N.W.M.P., doubts this and several others of the police support him in this opinion. I myself do not see any reason for their migration westward, and, as the wallows were well used and tracks and droppings were all fresh and in addition the feed plentiful, they evidently have their habitat here most of the year. The distance travelled by us to-day was about eight or ten miles northwest. This would bring us very close to the stream called Jarvis creek on Mr. Radford's map. No timber of any account grows in this district and with the exception of a few jackpine and poplar ridges the country is covered by hay-meadows dotted with alders.

This constitutes my diary for the outward journey, and, as our trail on the return journey was practically identical and as we saw no more buffalo, I will omit the remaining six days' notes. It may be of interest to state, however, that we ran out of food and I had to shoot game. This is very plentiful, moose, bear, caribou, beaver, partridges and prairie chickens abounding everywhere. It is cheaper by far to live by the rifle than to depend on salt pork. We made better time on our return journey, although we stopped many places to blaze the trail better and in many places to cut a new one around a slough or especially bad piece of muskeg. We arrived late on Sunday night, June 25.

Respectfully submitted,

GEO. A. MULLOY.

No. 31.

REPORT OF GEORGE A. MULLOY.

FORT SMITH, ALBERTA, July 27, 1911.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa, Ont.

SIR,—I have to report the work done by Mr. Boyd and myself during the last month. On Monday, July 3, we started on a trip to the southern and western woodbison range. Our intention was first to visit Moose lake and the district adjoining it and then to continue our trip south towards the Peace river. However, we were unable to reach the Peace River district, as our pack-horses ran away and we had to shorten the trip. As my diary is somewhat broken and condensed, I will accompany this report with a sketch of the country traversed.

Moose lake is a large swampy body of water almost directly west of Smith Landing. The distance is about eighty miles. From here to the Cariboo mountains, which can be plainly seen to the southwest, is fifty to sixty miles. The country all around the shores and westward as far as the eye can see is covered with good spruce timber, ranging from twenty to thirty inches in diameter. It is typical spruce country. The ground is covered with sphagnum moss and a thick undergrowth of alders and scrub of all kinds. I studied the country from the top of a high tree on a jackpine ridge southeast of Moose lake, and this fine timber belt appears to continue as far west as the Cariboo mountains. I was indeed surprised at the character of the country as my informants had told me it was a good prairie country inhabited by buffalo. However, this is not a buffalo range because absolutely no signs were found and the guide told me that they never come here even in winter.

The country out to Salt river from Smith's Landing is all swampy spruce, muskeg predominating. No timber of any kind except one poplar bluff is seen. The river here, seven to eight miles, west, is only a shallow creek with a stony bottom. The water is very salty and cannot be used for drinking. The west bank of the river rises, however. This rise continues for two miles or so, rocky in places and covered with small jackpine and poplar. Then the salt country is entered. Everywhere the sloughs and creeks are saturated with salt, and in many places where small ponds have dried up the mud is covered with a thick deposit of salt. It permeates everything. Even the leaves of the trees, when chewed up, taste salty. To the south and southeast a great salt plain stretches. Through this we passed on our return. The ground is covered with a very rich growth of grass, which does not seem to be affected by the salt.

Immediately west of the salt country is a rolling poplar-scrub country, which seems to be a favourite spot for buffalo. Deep-worn trails cross the main trail in every direction. Here, towards evening, we encountered a big buffalo bull. He appeared to me to be very much larger than any I had seen before. He was in good condition, and allowed us to come within fifty yards of where he stood in a wallow. Next morning we met one on the trail almost as large as the first. These were all we saw, because the bush at this time of the year is very dense. However, there are many buffalo wandering through here, because fresh tracks were met with at every step. The range here, though, is very narrow, and I think this is only used by the buffalo in their migrations north and south.

Further west, rolling country is encountered, with hay-meadows dotted with alder brush and broken by poplar groves, spruce clusters and scrub generally. Some of it is good timber but badly damaged by fire. Still further west and north, sandy jackpine ridges are the order. These, especially, are much burned over by fire, which has burned up the needles on the ground and scarred and blackened the boles of the trees. It seems to have been a ground fire of two or three years ago. The timber, however, is mostly standing and not dead. This is a moose country, and no one but the Indians come in here, and they only in the winter time and when driven to hunt moose for food.

This jackpine continues right to Moose lake with the exception of two or three miles of light poplar at the eastern arm of the lake. In most places the jackpine is small and scrubby or not fit for anything but two by four scantling. But for ten miles around the spot on the enclosed map, marked 'Hogback ridge' the timber attains a very fair size, fifteen to twenty inches in diameter and straight and tall.

This I think describes the country traversed pretty well. I was gone three weeks and was almost driven out by the flies. They had bitten me so badly I was afraid of poisoning. Mr. Boyd and the Indian guide made a rather foolhardy attempt to recover the horses, resulting in their having to walk eighty or more miles without food or fire. I was left at Moose lake with no idea what had happened to them for six and a half days.

Respectfully submitted,

GEORGE A. MULLOY.

No 32.

REPORT OF GEORGE A. MULLOY.

FORT SMITH, ALBERTA, December 28, 1911.

R. H. CAMPBELL, Esq.,
Director of Forestry,

Ottawa.

SIR,—I have to report the work done by the trapper, Peter McCallum, and myself since September last. We have been for three months or more in the northern bison range, and therefore I have not had an opportunity of communicating with you more frequently.

On September 16 last, after putting up a supply of fish for the dogs at Gravel point, we loaded up our skiff with supplies and started down the Slave river. Our intention was to make a small catch of fish at Grand Detour, a big bend in the river some thirty-five miles down stream, so that we would not have to return for dog-feed before the snow came. From this point we were to strike west to the Little Buffalo river and up Bear creek, which enters the Little Buffalo at this point. McCallum knew there was an old shack on Bear creek and our intention was to use this as a stork-house and head-camp while in this district. How these plans worked remains to be told.

As was the case with many others who waited too long to lay in their stock of fish for the winter, we were unsuccessful in this second, or supplementary, catch at Grand Detour. The last, or big run of 'connies' never came. Disappointed and left with four dogs to feed until snow came, we decided to push on overland to the Little Buffalo river.

Earlier in the year the crossing of this portage with a boat is much simplified by using several long narrow sloughs which nearly connect these two rivers at this point. But we found the sloughs nearly dried up and the dragging of a heavy boat for miles overland wholly impracticable. So we concluded that our best plan was to hitch the dogs to the sled and drag the sled and as many supplies as possible over dry land, leaving a cache on the bank of the Slave river. This was killing work, as we had to assist the dogs and incidentally hunt feed for them, wading in icy water after muskrats, shooting chickens and snaring rabbits—any and every means to get enough feed for those dogs.

At last, after much exploring, we find the shack on Bear creek and take possession. Some moose hunters had pulled the whole side of it out for wood, and it was in a pretty bad condition. But we thought it would save time to repair it.

Now commenced one of the most difficult games I ever had a hand in—trying to carry on our work of exploring the country and repairing the shack and at the same time provide meat enough for the dogs. McCallum killed a large moose and I shot a bear. This aided us materially, but the meat disappeared very rapidly and towards the end of our stay we were reduced to snaring rabbits for dog feed. Thus you see, sir, I am not very much in favour of dogs as a means of locomotion. However, the winter has just set in and their usefulness will be put to a good test. But to continue. Of course, we have made many excursions and trips both far and near so that I will be able to give you a good description of the country and a reasonably accurate sketch. The long trips, of course, have been made only since the snow came. The breaking of a trail is slow work and is rather hard work, but once broken, a trail can be used all

winter, as the dogs have a solid footing and travelling for man with trail-snowshoes is not a very difficult matter. Our main trail is forty to fifty miles long and runs westwards from Bear creek, crossing what appears to me to be the southern end of this northern bison range. We have not been able to come up with any of the herds as yet, as they can travel very fast and far, but, of course, their tracks in the snow told us all we wished to know. Later, however, when the snow on the huge open hay-meadows or prairies becomes solid and we are not forced to wade through snow and grass to our waists, we will be able to travel more quickly and keep a closer watch on any band we encounter. All the tracks we have seen have been made by bison headed to the north or Resolution end of the range, except seven which were travelling in the opposite direction. One of the trails was quite hard and well defined, although covered several inches deep with fresh snow, and McCallum thinks there were forty to fifty in the band.

Now, with reference to the wolves, I would have preferred, of course, to give some visible evidence of the work done and been able to turn over at least a few of these animals' pelts as proof that we were able to catch them, but it will be probably more satisfactory to you to hear that we saw very few tracks in the locality, and these have almost invariably been those of wolves which have later crossed the Slave river on their way to the caribou territory. This has one exception. We did discover that one large wolf had been following a herd of seven bison (those referred to above) but as they did not show any signs of fright or agitation they evidently were not afraid of him.

We have placed baits and traps on all our trails except where they approach or cross any other trail. These have to be visited very often, as a fresh fall of snow might cover up the track of any poisoned animal, and, although we have caught and killed many birds and rabbits, no wolf has come near our trail or traps. This seems rather discouraging, but better results may be hoped for later in the winter, when the wolf, with many others of the meat-loving animals, cannot catch the rabbits which are very numerous and which fall an easy prey to any of the carnivorous tribe.

At the outset of my description of the territory covered in the last three months I wish to correct a statement or impression I seem to have given you in one of my earlier reports. The timber along the Slave river is splendid. My error may be accounted for when I say that the trail we followed in June last approaches the banks at only a few places, and therefore one does not get a favourable impression at first. But since we have navigated the river in a small boat I have had a better chance of inspecting it. The river all the way to Grand Detour is bordered by a heavy belt or fringe of spruce, varying from one mile or more to a few yards in width. The islands especially are very heavily timbered. One big island which is seven to eight miles long and two miles wide at its widest point, and on which the Hudson's Bay Company, has a saw-mill at present, is densely covered with large spruce. In many places the trees are three feet in diameter, and standing so thickly that no underbrush will grow. This is a sample of all the islands as far as Grand Detour, and there are many and all very large.

The country lying between the Little Buffalo river and the Slave is practically the same throughout its entire length. We have crossed it in many places and in coming to headquarters this time we followed some Indians' trapping trails which wound in and out all over the country, making our trip across country very tedious and long, but allowing us to get a good idea of the country. This strip of country is invariably flat. Long narrow sloughs or hay-meadows are sandwiched in between long narrow strips of timber, both running parallel to the big river. The timber, which is spruce and poplar mixed, decreased in size and quantity as the distance increases from either of the rivers. Down at Grand Detour, however, the sloughs become immense hay-meadows, varying from half a mile to two miles in width and stretching northwest as far as the eye can see. The timber here becomes almost a

negative quantity, with the exception of the belt along the two rivers and a few scattered islands and isolated strips. This immense hay-slough or prairie, as it is falsely called by some people here, is said to run all the way to Resolution, broken only occasionally by clumps of alders and small spruce thickets. This country, I should say, would make excellent grazing or ranch land, as it is covered by a dense growth of long grass.

Bear creek enters the Little Buffalo river some four or five miles south of the portage to Grand Detour. It is a small stream about five yards wide at the mouth, and inclined to be swift, especially so seven or eight miles from the mouth where it passes through some rocky country. Its course is, generally, from the southwest, and its banks are thickly clothed with good-sized spruce. The rocky country some eight miles west on the Bear creek is a continuation of the outcropping at Salt mountain, I am sure, because it presents the same appearance and runs in a southeasterly direction, gradually approaching the Little Buffalo river. In fact this height of land continues on across Bear creek for some distance and forms the footing, or base, of the big flat buffalo range to the north. It is very rocky and precipitous in places, especially at Bear creek, but in other places is covered with an excellent growth of poplar. However, on the south side of Bear creek, immense old brulés are encountered. These, I am pleased to say, are invariably covered with seedlings and small trees.

To the north of Bear creek, as I have mentioned, lies the great buffalo range. It is the same kind of country as we encountered immediately to the east of the Little Buffalo. Covered with long, rank grass and broken only occasionally by islands and strips of small spruce and poplar, it stretches as far as the eye can see. Occasionally sloughs occur, but these are insignificant compared with the immense amount of dry

hay-land.

The sketch I am making is not as yet completed and, as I wish to get this off by the next mail, which leaves on January 1, I will enclose it under separate cover.

We are making a long trip into the southern range in a day or so, as we have cause to suspect some fur hunters in that district. I will let you know the outcome of it later.

Respectfully submitted,

GEORGE A. MULLOY.

No. 33.

REPORT OF GEORGE A. MULLOY.

FORT SMITH, ALBERTA, January 11, 1912.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa.

SIR,—As I intimated in my last report we have had a trip into the country west of Fort Smith and north of Moose lake. This trip was to ascertain whether the suspicions caused by the action of some Fort Smith Indians were groundless or not, and also to continue our work in connection with the wood bison.

Contrary to expectations, we found nothing that would lead us to suppose any buffalo had been killed, although we searched each camping-place and cache. But, although the Indians who were trapping on this trail when questioned by Mr. Bell had said that no buffalo tracks had been seen and that wolves were very thick, we

found just the opposite to be the case. Only one wolf track was seen and that an old one, while the buffalo seem to use this country as a range all year round. Why the Indians made misleading statements is hard to account for.

While our trip lasted only a week, we were able to cover a considerable distance in that time as the trapping trail was hard and firm, although in some places completely drifted in. The trail leads west and south from a point on the trail from Fort Smith to Salt river settlement and holds this general southwestern course until nearly north of Moose lake, where it swings to the northwest. It seems to be an old trail used by trappers for many years, but I should say it was impracticable for summer use; it for miles follows big sloughs and country which is more or less inundated in the summer months.

The first part of the country going westwards is simply a continuation of the Fort Smith type of land, namely, flat, sandy, and covered with a good growth of jackpine, here and there broken by open patches covered with alders. This stretches for four or five miles and then changes to what in this country is called prairie. This is not really prairie, although it is flat and covered with a short fine grass. I would call it rather scrub country, as everywhere waist-high alders and red willows cover the ground. This runs right to the bank of the Salt river, a distance of seven or eight miles.

Crossing Salt river, which is here thirty yards or so wide, we came in view of the Salt mountain range of hills, some four or five miles away, across a big slough or shallow lake. This latter runs to the north along the foot-hills. The range of hills here is fully as high as at Salt Mountain proper but is not rocky and precipitous. It slopes up gently and is covered thickly with jackpine and an undergrowth of small poplar. The jackpine is of good size, ten inches diameter being the average of the larger trees, but the poplar is of no account at all. Farther on, however, say four or five miles, as the country slopes gradually downwards and westwards, poplar and spruce predominate. Large hay-meadows and sloughs make their appearance, bordered by densely timbered spruce muskegs. Here it is, on this western slope of this range, that the buffalo have their habitat. In fact, I think that we will eventually find that, as this range of hills bisects the country north and south at every point I have visited it, the buffalo use the western slope of it for both winter and summer feeding, probably using it also as a connecting link between the two bands, the northern or Resolution band and the southern or Peace river band.

Westward from here (ten or twelve miles from the Salt river) begins a country which is hard to describe as the cause of its condition is not readily apparent. It is practically flat until the foot-hills of the Caribou mountains are reached, and although very swampy in places it is not a muskeg. Evidences of forest fires can be found if looked for, but the subsequent fallen timber has long ago rotted away. The country is now clothed with a dense growth of small spruce and a forest of dry small poles. It is a great moose country, and this may possibly account for its condition, as moose hunters as a rule are not very careful of their camp-fires. I climbed to the top of a tall, rocky promontory which juts out from the west, just north of Moose lake, and saw that this kind of country stretches south to the big timber surrounding Moose lake, and north as far as the eye could see, following the course of the Little Buffalo, which here winds northward to its source in some small lakes. Of course patches and strips of big timber are scattered here and there, almost invariably spruce, but they are only islands in a sea of small second-growth spruce.

I have not had time to prepare a sketch-map as we are almost continually on the trail or getting ready for the next trip, but hope to be able to do so in the near future.

I might add, in conclusion, that we saw where Indians had followed buffalo tracks in many places, but were unable to ascertain whether a kill had been made or not. This will have to be done in the spring when the snow goes. The wolves,

however, seem neither to be very numerous nor to have any inordinate desire for buffalo meat. We are continuing, however, to pursue them as vigorously as possible.

Respectfully submitted,

GEO. A. MULLOY.

No. 34.

REPORT OF GEORGE A. MULLOY.

FORT SMITH, ALBERTA, March 1, 1912.

R. H. Campbell, Esq., Director of Forestry, Ottawa.

SIR,—I have to report work done by the trapper, P. McCallum. and myself since

last report in January.

As I intimated in my last letter, we returned to our trapping operations in the Bear creek and Little Buffalo River district. This has been singularly unsuccessful, owing, most probably, to the absence of any wolves in that part of the country. Foxes, however, were very plentiful and why none of them took our bait or got into our traps is a matter which the trapper has been trying to explain to me. Foxes and wolves are about the same, in regard to trapping operations; at least the same methods are employed to eatch both, and the natural deduction is that something was wrong with our method of trapping. The fact remains that no wolves were caught or killed, and, as no new buffalo tracks were seen, we decided to quit operations in that locality.

For some time Mr. Bell has wished us to make a trip into that district lying between the Peace river and Slave river near the junction, the object being both to determine whether there were any buffalo there and to get a description of the country. On February 20 we started up the river with a guide and extra team of dogs. Our intention was to follow the pack trail on the river until we came to the big bend in the river some fifty miles or so south of Smith's Landing. Here, starting from the most westward part of the bend, we could cut a trail through to the Peace river following a southwest course as nearly as possible. This was done by means of the compass and, with everything favourable, should take us to the most eastward point of the big bend on the Peace river, somewhat below Peace Point. In all this we were very successful, landing at the nose of the bend on February 24.

No signs of buffalo, however, were seen at any part of the twenty-five to thirty miles of trail which we were forced to cut through this country. Alexis, the guide, however, tells me that there is quite a band, 50 to 100 of these animals, some miles north of here. This is where Mr. Radford shot his specimen, and the guide has a

trapping trail through or near their winter feeding ground.

Of our elusive enemies, the wolves, not a track was seen.

Now, I have been talking over the situation with Mr. Bell, and especially his plan for the localization or rounding up of the buffalo in a certain district, and most heartily concur with his ideas. You will see from my description of the country appended hereto that there would be plenty of feed and shelter for them and their protection would be only a simple matter. As it is, since they are scattered so widely up and down the country, any adequate measures for their protection would necessarily be very expensive.

Trapping or poisoning operations have to be carried on in one part of the country at a time. This would be all right if we could get close to a big band of buffalo and kill any or all the wolves that came to molest them. But as they are scattered so widely it means that we are neglecting ninety per cent of the animals to do ten per cent of them some doubtful good. Therefore, sir, you can see why Mr. Bell and I have decided that the best interest of the buffalo can be served by making trips of inspection here and there and everywhere through the country.

It is also of great importance to determine a thing the determination of which, to most people up here, seems an impossibility, and which up to the time of writing I have not had much opportunity to determine, i.e., the approximate number of buffalo in each locality. Of course I know that upon this point will hinge the advisability of further expenditure in regard to their protection, and tripping everywhere through the country is the only means of obtaining this information. It can never be obtained by localized trapping operations, as the trapper McCallum expected would be the case.

I will now describe as accurately as I can the country encountered on our Peace

river trip.

The timber south of Smith's Landing along the Slave river as far as the big bend is not nearly as good as that in the lower river below Fort Smith, both in regard to individual size and quantity. Each point has its big bluff of spruce. This timber is fair in size, ten to fifteen inches in diameter. Every tree, however, is limbed nearly to the butt owing to their exposed nature. The main bank of the river is clothed with small black poplar of no commercial value. Islands, however, are numerous and these one and all are densely wooded with good spruce.

The bank of the big bend is practically the same, big bluffs of spruce alternating

with long stretches of small poplar.

Striking inland from the river in a southwest direction, high lands covered with a mixed growth of poplar and spruce are encountered. The spruce is very good and continues so until the bank of a small river is encountered. This stream is of fair size, thirty yards wide, with high, steep banks. It has numerous names, or rather, there seems to be a discussion which is the right one. However, the Indian told us that it comes out or empties into the big river at Le Butte, a point twelve miles above the northern end of the big bend. From a well informed riverman I also have the information that it is open at the other end through some sloughs into the mouth of the Peace river, and, at high water, the water flows from the Peace river directly through this channel into the Slave river. However at this point, three miles southwest from the Slave, it comes from the south and appears to be very navigable for small craft.

The west bank of this small river is well wooded, with black, or balsam, poplar and spruce, but, as is the case with the timber on every stream in this country, it soon diminishes in size and quantity as the distance inland is increased. Hay-sloughs are next encountered surrounded by dense growths of small spruce, but this soon gives way to scrub prairie. This, in fact, is the character of the country until half-way to the Peace river, small flat openings covered with knee-high scrub and surrounded with thin fringes of small dense spruce. Here and there, to the south or north, rolling land is seen covered with a scattered growth of poplar. The timber is of no commercial value.

For the rest of the distance there is nothing but brulé. An enormous fire has destroyed the whole vegetable growth of the country. This reaches in places to the bank of the Peace river itself. This fire, which occurred some ten years ago, at least, seems to have started from the Peace river side, and to have swept eastward until practically all the timber of any value was consumed. The region five to ten miles back from the Peace is hilly and sandy, and is now covered with a forest of fire-blackened big jackpine poles. On the banks of the Peace, however, the worst damage has been done. The spruce there was of enormous size and extended a mile or so

back from the river. Just where we reached the river there is a very large strip of timber that has been spared. But to the east, north and south the fire has left nothing but an impenetrable brulé.

The soil throughout the central district is a good clay loam, but on the jackpine

hills nothing but sand has been left by the fire.

Our next trip will be a joint patrol with the mounted police, and I hope will be more enlightening as far as the buffalo are concerned.

Respectfully submitted,

GEO. A. MULLOY.

No. 35.

LETTER OF A. J. BELL.

Office of the Dominion Government Agent, Fort Smith, Alberta, January 16, 1912.

R. H. Campbell, Esq.,
Directory of Forestry,
Ottawa.

SIR,—I beg to submit for your consideration, the following report on the protection of the wood bison in the neighbourhood of the Great Slave river.

The protection of the bison is rendered difficult owing to the vast area over which the various small herds wander, and the distance from posts where supplies can be secured; these points make the efforts of the appointed herders of little real value, owing to the length of time taken in travelling between the base of supplies and the ever moving herds.

If it were possible to centralize these herds the annual expenditure would be

greatly reduced and more effective protection afforded them.

At the junction of the Peace with the Great Slave river there is a district much frequented by bison, both in the summer and the winter months. A line drawn eastwards from Peace Point, upon the Peace river, would intersect the Great Slave river about twenty miles below the junction with the Peace.

If a suitable fence were constructed along this line, a distance approximately twenty-five to thirty miles, the bison could gradually be worked from the north into this peninsula where there would be ample range for a very large herd for a number

of years.

Should the bison attempt to leave the range in the winter by crossing one of the rivers upon the ice, the herder (whose business it should be to patrol the water front) could follow and turn them back. It is not probable, however, that they would attempt to do this.

There are many old bulls who have been driven out of the herds by younger ones. These animals, being alone, are often killed by wolves. They are useless to the main herds, and, as they are as a rule of immense size, would make valuable trophies for museums or public buildings. They could be killed, skinned, and the bones preserved for articulation, the whole forming a few packages which could easily be shipped to the Department.

I beg to enclose an estimate of cost for the erection of fence and buildings, and for the moving of the northern and central herds to the southern end of the district.

Respectfully submitted,

A. J. BELL,
Agent.

(Memo re Cost of Fence, &c.)

ESTIMATE OF COST NECESSARY FOR THE MOVING SOUTH AND ENCLOSURE OF THE BISON IN FORT SMITH DISTRICT.

Country to be enclosed.—From Peace Point on the Peace river to a point upon the Slave river, about twenty-five miles eastwards.

Area within proposed enclosure.—125 square miles.

Nature of country.—Numerous level prairies, some jackpine ridges and poplar bluffs, a few hay-sloughs, and a small percentage of muskeg lands. A fringe of good spruce along the river banks.

MOVING THE HERDS SOUTH.

Three parties starting simultaneously from a point about sixty miles west of the Grand Detour upon the Slave river (thirty-five miles below Fort Smith), and about an equal distance east of Buffalo lake, could pick up the trail of the herd which frequents that district, and move south a few miles abreast. They should follow the buffalo trails, which are well defined and followed regularly by these animals in their migrations. These trails follow the high ridges, of which there are but a few in that country.

The time of year chosen for this work should be the middle of April.

Three Indians and three white men (acquainted with the country) should be sufficient for this work. They would need a pack-horse for each party. Wages, \$50 per month with rations, the cost (landed) of which would amount to \$25 per month.

Cost of pack-horses, \$1 per day. The Department has one pack-horse now on hand. Two months' steady work should sweep the country as far as Peace Point.

ERECTION OF FENCE.

This work should be commenced simultaneously from the east and west ends.

Jackpine and tamarack posts can be obtained in the locality, cost 20 cents each;
number required, about 10,000. Cost of labour necessary for erection of fence, \$50
per mile.

Cost of wire, 7 cents per lb. additional to the cost at Edmonton. It is estimated that five wires would be used.

Erection of two shacks within enclosure, at \$150 each, \$300. Preliminary survey and 'blazing' of fence line, \$400.

RECAPITULATION OF COST.

Moving the bison south	\$1,080 00
Cost of fence posts	2,000 00
Cost of wire, 125 miles	(?)
Erection of fence	1,250 00
Survey and 'blazing' fence line	500 90
Erection of two herders' shacks. (These shacks to be	
erected at either end of enclosure)	300 00

All of which is respectfully submitted,

A. J. BELL, Agent.

No. 36.

REPORT ON A SHIPMENT OF REINDEER.

DEPARTMENT OF THE INTERIOR,
FORESTRY BRANCH,
OTTAWA, October 25, 1911.

R. H. Campbell, Esq.,
Director of Forestry,
Ottawa.

Sir,—I have the honour to submit herewith a report in connection with a shipment of reindeer from St. Anthony, Newfoundland, to Fort Smith, Alberta, the details of which were carried out almost entirely under my personal supervision.

In order to convey a correct understanding of the reasons for undertaking to establish a herd of domesticated reindeer in the sub-Arctic regions of Canada it will

be necessary to recite, briefly, the circumstances which led up to it.

The earliest recorded attempt to domesticate reindeer on this continent is that of the United States government which, about 1892, imported a herd of Siberian deer to Alaska for that purpose. Several small herds have since been imported and, as the result of careful and intelligent handling, there are now some 15,000 domesticated reindeer in Alaska. The deer are used for practically all the purposes for which domestic cattle may be used and are, in addition, very useful for transportation purposes. The problem of transportation is, aside from the severity of the weather, the most serious with which dwellers in the Arctic regions have to deal. The cost of grain and hay, neither of which is grown in any considerable quantity, precludes the use of horses or cattle for transportation purposes and, prior to the introduction of reindeer, dogs were used almost entirely. While Eskimo or husky dogs made excellent beasts of burden, their usefulness is seriously impaired by the necessity of hauling with them sufficient fish, or other food, for their own subsistence. This seriously limits the sphere of a dog's usefulness, as on long trips dogs can haul little, if any, load beyond their own food supply. Reindeer, on the other hand, while quite as hardy as the best train dogs and able to haul somewhat larger loads, find their own subsistence in the moss which covers practically all of the sub-Arctic region. No matter how cold the weather, or how deep the snow, the deer can paw their way down to the moss and thus keep themselves in good condition on the longest and roughest trips. Another point in favour of deer is that, should misfortune overtake a party of Arctic travellers and it becomes necessary to kill the transport animals for food, the flesh of the deer is palatable and nourishing, while only dire necessity would impel anyone to use dogs for food.

It seems to have been the idea of the United States government that the establishment of large herds of domesticated reindeer in Alaska would be a long step in the direction of solving the transportation problem of that district and, in addition, would to a considerable extent provide a food supply for the natives who otherwise would

from time to time become charges upon the public treasury.

This experiment by the United States government was followed with great interest by many Canadians who were interested in the development of our northern territories, and particularly by Dr. W. T. Grenfell, who, in connection with his medical missionary work on the Labrador coast, found himself confronted by practically the same conditions that obtained in Alaska, viz.: severe climate, absence of means of winter transportation other than dogs, and scarcity of food supply for natives and fishermen during periods of unusually severe weather.

At Dr. Grenfell's request the Dominion government in 1907 purchased a herd of some 300 Norwegian reindeer. These were handed over to Dr. Grenfell to be used by him in connection with his work. It was originally intended that the herd should be established on the Canadian Labrador coast, but Dr. Grenfell finally decided that his mission station at St. Anthony, on the northeast coast of Newfoundland, was a more suitable place for the experiment. There is an abundance of reindeer moss at, or near, St. Anthony, the climate is in all respects suitable and, should occasion require it, the deer can readily be shipped from there to any desired point on the Labrador coast as conveniently as from the point first selected.

Dr. Grenfell's experiment has proved successful from the start and, from the small beginning above referred to, he now has over 1,200 deer. A considerable number of stags and barren does have been killed for food, and there have been the usual unavoidable losses by death and accident. He reported in May, 1911, that the meat is excellent and the skins valuable and that, in his opinion, reindeer will in the future be as valuable in Labrador as in Alaska and will afford an export industry of meat from a district where it is never probable that wheat, corn or other cereals can be

profitably produced.

During the summer of 1910, His Excellency the Governor General, Earl Grey, visited Dr. Grenfell's mission station on his return journey from Hudson Bay. His Excellency was greatly interested in the reindeer experiment, and, having just seen a considerable part of sub-Arctic Canada, was impressed with the desirability of further extending the experiment by the establishment of herds in portions of the Northwest Territories. His Excellency subsequently discussed the question with Hon. Mr. Oliver, then Minister of the Interior, and some correspondence ensued between Mr. Oliver and Dr. Grenfell which resulted in Dr. Grenfell agreeing to supply a limited number of deer from his herd at what the animals had actually cost him.

At this stage the correspondence was handed to you with instructions from Hon-Mr. Oliver to report upon the feasibility of locating a suitable reindeer range in the vicinity of Fort Smith, on the Slave river at the extreme northern boundary of Alberta. You submitted a partial report on 22nd May, 1911, but, with the information then available, were not able to make any definite recommendation. Subsequently, however, you called upon Dr. Grenfell, at Toronto, and discussed the whole question thoroughly with the result that, on 9th June. Dr. Grenfell in a letter addressed to you, submitted a detailed proposal covering the whole question and agreeing to supply deer, moss sufficient for the journey, and experienced herders to take charge of the deer throughout the trip and to remain with them for a sufficient time to permit of others being trained to succeed them. This offer was accepted, and on 21st June, 1911, authority was given to complete the purchase and to arrange for the shipment.

At about this time you were called away from Ottawa on business and the further arrangements were entrusted to me. The first step was to ratify the provisional arrangement with Dr. Grenfell and, accordingly, on 26th June he was informed that the Department would accept his offer to supply fifty reindeer at the rate of \$51.30 each. Dr. Grenfell was further informed that three trained deer dogs would be required and a supply of deer moss sufficient for a journey of thirty days; also that the Department would require two herders and one apprentice. The salary suggested for the herders was not exceeding \$500 a year each and not exceeding \$30 per month for the apprentice. An arrangement was made with the Department of Marine and Fisheries to have one of the government steamers call at St. Anthony and transport the deer to Quebec, from which point they would be taken by rail to a point on the Canadian Northern railway about sixty miles north of Edmonton. Arrangements for transportation beyond Edmonton were entrusted to Mr. J. W. McLaggan, Chief Fire Ranger for that district, who was instructed to have scows built and crews engaged to take the deer from Athabaska Landing to Fort Smith. I was authorized to go to

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Montreal and Quebec to arrange necessary details in connection with the shipment by ship and rail and to go to St. Anthony to receive the deer and to accompany them at least as far as Edmonton or Athabaska Landing.

I went to Montreal and Quebec between August 18 and 22, arranged all necessary details, and again left on the 5th September for North Sydney, Nova Scotia, to meet the ship, it having been arranged that she would call at that port for coal after loading the deer at St. Anthony. Owing to pressure of work and to the infrequent trips made by the only steamer calling regularly at St. Anthony I, was unable to reach that point in time to superintend the loading of the deer.

It had been arranged with the Department of Marine and Fisheries that the G. SS. *Montmagny* would call at St. Anthony for the deer between 25th August and 10th September, but, as the ship was then delivering lighthouse supplies in the Gulf of St. Lawrence, it was impossible to fix a definite date much in advance. The *Montmagny* reached St. Anthony on the evening of the 6th September, loaded the deer on the 7th, and sailed for North Sydney on the 8th. She was delayed by fog and bad weather and did not arrive at North Sydney until the night of the 12th. I went on board on the morning of the 13th, and we sailed at 9 p.m., on the same date.

I found the deer—six stags, four oxen and forty does—all apparently in good condition. They were in comfortable, roomy pens, six in all, in the forward part of the boat, 'tween decks directly under the main fore hatch. The air was fairly cool and the ventilation, with the hatch open, was excellent. Nathaniel Gear, the chief ranger, informed me that there had been little difficulty in loading the deer and that none had been injured so far as he could ascertain. Mr. and Mrs. Gear had been given cabin accommodation, while the other herders were treated as deck passengers and messed with the crew. I found that four, instead of three, herders had been sent by Dr. Grenfell, but Gear explained that the fourth man, Wroughton Vickers, was returning to his home near Toronto and had been sent with the deer to assist in caring for them on board ship and in transferring them to the cars at Quebec. Dr. Grenfell seems to have assumed that the Department, in return for Vickers' services, would be willing to pay for his meals on the ship and his railway fare from Quebec to Montreal. I may add, in order to clear this matter up, that Vickers made himself generally useful during the trip and I paid for his meals and railway fare; he left us at Montreal.

I had not been furnished with an invoice of the goods supplied by Dr. Grenfell, that having been sent direct to Ottawa, but I examined as carefully as possible all the articles that could be seen and satisfied myself from the statements of the chief herder that everything had been supplied in accordance with the agreement. I have since verified this by reference to the invoice. The moss for the deer was packed in bags and stored in such manner as to make it difficult to count the number of bags or to estimate the weight; experience proved, however, that sufficient had been supplied to last for at least one month.

Upon leaving North Sydney I was informed by the ship's officers that, instead of proceeding directly to Quebec, the vessel was under orders to stop at Cheticamp, a village on the north coast of Cape Breton island, to take on board and convey to Montreal a cargo of powdered gypsum. So far as any of us knew at that time the only objection that could be made to this was the delay, but subsequent experience proved pretty conclusively that the dust from the gypsum was injurious to the deer. We reached Cheticamp at 8 a.m. on September 14 and immediately commenced taking on cargo, which was continued without interruption until 2 p.m. of the 15th. The vessel lay with her starboard side to the wharf and the bulk of the cargo was taken on through the fore hatch. Owing to the gypsum dust it became necessary to close the ports on the starboard side and to hang tarpaulins in front of the three deer pens on that side of the vessel, but in spite of all precautions the air became very hot and the dust in those pens was stifling. Some of the deer were noticed licking up the dust which had

settled on their pens and watering troughs. During the night of the 14th-15th one doe died and on the following day (15th) two more were found to be sick. The death roll shows the following:-

September 15.—1 doe died. 16.-2 does died. 17.-1 doe died. 18.-2 does died. 66 22.-1 doe died. 25.—1 stag died.

29.-1 doe died.

Total.... 9

The first seven deaths were from the three pens on the starboard side of the vessel, where the air was closest and the dust most stifling. The symptoms were practically the same in each case, very laboured abdominal breathing and, as death approached, a painful gasping for breath and violent muscular spasms. From close observation of all these cases and from opinions given by veterinary surgeous who had seen the animals, or to whom the symptoms had been described by me. I am confident that at least seven, and probably eight, of the nine deaths were due directly to inhalation of gypsum dust. Since my return to Ottawa I have discussed this matter with Dr. J. G. Rutherford, Veterinary Director General, who confirms my opinion. Dr. Rutherford describes the disease as 'traumatic pneumonia,' due to irritation from inhaling gypsum dust. It is very much to be regretted that the success of this experimental shipment should have been jeopardized and, as the result shows, seriously impaired, by avoidable causes. As soon as the loading of gypsum was finished the ports and hatch were opened and the pens thoroughly cleaned. Small watering troughs were built and placed in each pen and kept constantly supplied with fresh water. One of the herders was kept constantly on duty so that special attention might be given to any animal showing signs of disease. The officers of the ship were very considerate and did everything in their power to assist in caring for the deer.

We left Cheticamp at 2 p.m. of the 15th September and, after an uneventful passage, reached Quebec at 9 a.m. of the 18th. Arrangements had previously been made with the Canadian Pacific Railway Company for transportation of the herders, deer and baggage from Quebec to Edmonton, but I found instructions awaiting me cancelling this arrangement in part. Under the new arrangement shipment was to be made via the Canadian Pacific to Port Arthur and via the Canadian Northern from Port Arthur to the end of the steel on the uncompleted line from Edmonton to Athabaska Landing. I at once got into communication with the officers of the railway companies and arranged to have cars placed on the tracks at the dock in time to unload the deer at high tide—about 2 o'clock p.m. I was informed that, if the loading was completed in time, shipment would be made by the regular train at 7 p.m.

My time was very fully occupied during the morning in passing the shipment through Customs, securing a certificate from Dr. Couture, a veterinary inspector in the employ of the Department of Agriculture, and in purchasing provisions and other supplies required for the long journey by rail. These details occupied considerable time and entailed a good deal of running about, but they were finally arranged and

I got back to the ship shortly before two o'clock in the afternoon.

TRANSFER FROM SHIP TO CARS.

Owing to the necessity for unloading the deer during high tide when the deck of the vessel was approximately level with the dock, it was impossible to unload directly into the cars and, moreover, it was impracticable to bring the cars very close

to the ship. There was a vacant warehouse on the dock just opposite the ship and, through the courtesy of the harbour officials, it was arranged to turn the deer into this until all were off the ship and then to load into the cars from the opposite side of the warehouse. The does and stags were taken from their pens and placed in a large cage which was then hoisted by the donkey engine to the dock, from four to six deer being carried at each load. From the spot where the cages were landed on the dock to the door of the warehouse was about thirty feet and ropes were stretched so as to form a lane from the cage to the door. The ship's crew and spectators were used to form a line outside the ropes so that the deer were readily induced to trot into the warehouse. Mr. Gear and the other herders placed the deer in the cage and released them from it and their work was both hard and unpleasant, as the animals were greatly excited and in some cases fought viciously. The ox deer could not be hoisted in the cage on account of the size of their horns. (I neglected to say that the stags had been dehorned at St. Anthony in order to facilitate handling and to prevent their injuring one another. The horns of the does are much smaller and do not seriously interfere with handling.) Each ox deer was hoisted singly in slings and then led into the warehouse. The oxen are broken to drive and handle and we had no trouble with them at any stage.

It took about two hours to land all the deer from the ship and during this time the ship's carpenter and others were employed in building partitions in the stock cars, using the lumber that had been used in the pens on the ship. The idea of partitions in the cars was to permit the doors to be opened without any risk of the animals escaping; a further advantage was that it permitted of the use of the space between the doors for storing moss and bedding.

Our real troubles began when we attempted to load the deer into the cars. A passenger gangway, with sides about thirty inches high was run from the door of the warehouse to the first car and we first led a stag up this inclined way. He went about half-way up and then suddenly jumped the railing and landed on the dock among the spectators, causing a rapid scattering. Several breaks of this sort were made, but, by climbing along the outside of the gangway and keeping the deers' heads down, we were generally able to prevent any getting away. One stag, however, put up a vicious fight, using both horns and hoofs, and was finally carried on board fighting all the way. One of the herders was somewhat injured in the fracas, but fortunately his injury proved not to be serious. The does were easier to manage but all had to be led into the cars. It was not considered safe to drive them, as they might have injured themselves by jumping over the gangway railing and possibly might have escaped altogether.

The loading of the deer was completed about six o'clock and then a very busy hour was spent in loading the moss and baggage. All was completed, however, about seven o'clock and the cars were moved away to the freight yard where the train was being made up.

The tourist car in which the herders were to travel had been placed on a siding near the dock and as the provisions and other supplies purchased by me during the morning were delivered they were placed on board and the car kept locked. The last of these supplies was delivered about six o'clock and I then placed Mrs. Gear, the wife of the chief herder, in charge of the car, while Mr. Gear and the other herders remained with the deer cars. I then drove to the railway station where I completed arrangements for the shipment, made out and signed a bill of lading and procured tickets covering the transportation of myself and the herders. We left Quebec at 7.30 p.m. very tired but thankful that there had been no serious accident or delay and that in spite of the many things to be done and the short time to do them in we had been able to accomplish all that we had set out to do, without delaying the shipment in any way.

I feel that I should not close this part of my report without expressing my appreciation of the kindness of the officers and crew of the G. SS. Montmagny, who not only assisted in unloading the vessel, which was probably their duty, but who also very materially assisted us in handling the deer from the dock to the cars and in preparing the pens in the cars. Without their voluntary assistance we would hardly have been able to get loaded and away within one day.

I am also greatly indebted to Mr. G. J. O'Dowd, freight agent of the Canadian Pacific railway at Quebec, who personally supervised the placing of the cars at the most convenient points and who remained on the dock constantly from shortly after

noon until the last car was loaded.

JOURNEY FROM QUEBEC TO EDMONTON.

We arrived at Mile End, Montreal, at 4.30 a.m., of the 20th September, and here learned that we would not pass through Ottawa as had been previously arranged. I accordingly wired you, suggesting that you meet us at Smith's Falls, which you did in the afternoon. Two deer which had been sick the previous day had died during the night. We watered and fed the deer during the stop at Mile End, and, later, while stopping at Outremont, the herders went into the stock cars and remained there practically all day employed in putting up partitions, arranging water troughs, &c., so as to make the deer as comfortable as possible. The cars supplied us were the most modern form of stock cars, but the facilities for watering and feeding, while no doubt admirable for cattle or horses, were entirely unsuitable for deer. Owing to the height of the troughs and hay-racks it was impossible for the deer to reach up to them and we therefore utilized the small watering troughs built by the ship's carpenter. These troughs were fastened to the floor and were kept filled from water-barrels which had been purchased at Quebec and placed in each car. Moss was fed by being placed in a ridge along one side of the car; doubtless some was wasted by being trampled upon, but the deer seemed to get most of it.

Our equipment consisted of one tourist car, three stock cars for the deer and one stock car for feed, baggage and dogs. We left Quebec with forty-six deer, divided among the three cars as follows:—

In the baggage car we had most of the personal baggage of the herders, a supply of moss sufficient to last some three weeks, a supply of hay for bedding, and three Lapland deer dogs.

You joined us at Smith's Falls and accompanied us as far as Chalk river and personally saw that the conditions were as satisfactory as it was possible to make them.

At North Bay, on the 20th September, it became necessary to purchase an additional supply of hay for bedding in order to keep the cars clean, as a good deal of water splashed out from the barrels and troughs and made the floors sloppy. On this day I discovered that one of the stags had an abscess in his throat and other symptoms of illness similar to the does that had died previously. All the other deer were well at this time except one doe that had been sick ever since we left Quebec. I may add that both of these animals finally died, the doe on the 22nd and the stag on the 26th September.

We arrived at Port Arthur about noon of the 22nd September, where we were transferred to the Canadian Northern Railway. The deer had been billed through to a point north of Edmonton, so I had no difficulty about them, but, as our own tickets ran out at Port Arthur, I procured five second-class tickets over the Canadian Northern

Railway from Port Arthur to Edmonton, giving a receipt therefor and requesting the agent to submit the account to the Department for payment. It had previously been arranged that the shipment should be taken to the end of the steel on the Athabaska Landing extension north of Edmonton, but the agent preferred to issue tickets only as far as Edmonton. These tickets were subsequently altered, I understand, to cover transportation as far as Morinville—some twenty-two miles beyond Edmonton, the farthest point to which the line is open for traffic,—and the account since submitted covers transportation to that point. We had expected to be required to transfer at Port Arthur from the Canadian Pacific Railway tourist car in which we had so far travelled to a Canadian Northern Railway car, but nothing was said about it and we proceeded in the same car as far as Winnipeg.

You had arranged by correspondence with Dr. Rutherford for a veterinary surgeon to examine the deer at Port Arthur and a careful examination was made by Dr. D. B. Fraser. At the time of Dr. Fraser's inspection I was engaged with the station agent in arranging for our further transportation and so failed to see him, greatly to my regret. Subsequently, however, I saw his assistant, Dr. Parkhurst, and went very fully into the circumstances surrounding the illness and death of the six deer that had died up to that time. We were supplied with medicine for the sick stag and given instructions as to treatment, but I think Dr. Fraser realized that the animal was not likely to recover.

We left Port Arthur at 3.45 p.m. on the 22nd September, by a special freight train and reached Winnipeg at 2 o'clock a.m. on Sunday, the 24th. The journey was uneventful except that the sick doe died on the night of the 22nd and the condition of the stag did not improve under treatment. One unfortunate mishap was the loss of one of the deer dogs. All the dogs were tied in the stock car used for baggage and were given sufficient rope to permit them to move about and have access to the waterbarrel. The slats of the car were so close together that there was no possibility of a dog's squeezing through between them, except in the space where the iron watering trough was attached. As we were not using these troughs we had carefully turned them so as to completely block up this aperture, but some curious person must have turned one of the troughs so as better to see the dogs and left it open with the result that this dog squeezed through and hung suspended until his rope broke and dropped him beside the track. As the train was rounding a curve one of the herders noticed the dog suspended from the side of the car and clambered over the cars to secure it before it choked. Unfortunately the rope broke before the herder could reach the car. We left word with the agent at the next station to send the dog on to Edmonton by express if he could secure it, but there is little prospect of recovering it. occurred near Hume, a station about forty miles west of Port Arthur.

Upon our arrival at Winnipeg at two o'clock on Sunday morning we had to transfer all of our personal effects, provisions, &c., into a Canadian Northern car which had been prepared for us. We were delayed some little time here owing to the necessity for taking on fresh water, coal and gas in our own car and water in the stock cars, but finally left at 6.15 a.m.

The journey from Winnipeg to Edmonton was uneventful; we made good time and there were no further signs of sickness among the deer. On the afternoon of the 25th Mr. J. W. McLaggan met us at Paynton and returned with us to Edmonton. Mr. McLaggan had been instructed to arrange all details in connection with the transportation and care of the deer beyond Edmonton and had joined us at this point in order to further discuss matters with me before our arrival at Edmonton. I found that Mr. McLaggan had arranged with the Canadian Northern Railway Company to take our cars straight through from Edmonton to the end of the steel—some sixty miles—and that he had a corral built at that point and a camp established with some of his men in charge, so that the deer could be promptly unloaded and taken from there to Athabaska Landing where scows were waiting to take them to their final destination. The only difficulty about these arrangements was that no provision had been made for

a sufficient delay at Edmonton to permit of the purchase of the supplies which would be required by the herders and which must be taken with them to Fort Smith. It had originally been my intention to purchase these supplies myself upon arrival at Edmonton, but my experience at Quebec had very forcibly illustrated the undesirability of one man's attempting to do too many things in a limited time. I had suggested to you at Smith's Falls that it would be a good idea to forward a list of the required supplies to Mr. McLaggan so that he could have all the purchases made and the goods ready to be shipped with us. You had sent such instructions to Mr. McLaggan on the 20th September, together with a list of the required supplies, but these instructions tailed to reach him until after our arrival at Edmonton and arrangements had then been made for sending us on at once; in fact an engine and crew were waiting to take us on at once, so that it was practically out of the question to make any further delay at Edmonton. The only alternative was to make the purchases at Athabaska Landing and this course was finally decided upon.

The cost of the supplies at Athabaska Landing was considerably higher than at Edmonton and it subsequently proved impossible to procure some articles at any price, but against this must be considered the cost to the Department of freighting the supplies by wagon from the end of the steel to the landing, a distance of some fifty miles over a very rough road, and the difficulty of securing a sufficient number of wagons for this purpose in the short time at our disposal. Taking all the circumstances into consideration the increased first cost of the supplies is of comparatively little importance. I regret, however, that the herders themselves had to pay the higher prices for the articles of clothing, etc., which they had to purchase for their long stay in the North. This was particularly hard on the chief herder, Gear, who, being married, had to make more extensive purchases than the others.

I saw the Hon. Mr. Oliver at Edmonton and reported to him regarding the shipment up to that point; he had previously given personal instructions to Mr. McLaggan regarding the arrangements beyond Edmonton. Mr. Oliver saw the deer and the herders and gave instructions to rush the shipment through as fast as possible and to procure and take with us a supply of closely-woven fencing wire for making a corral at Fort Smith to protect the deer from dogs. He also authorized me to have the head of one of the does that had died mounted by a taxidermist at Edmonton and shipped to Ottawa. All these arrangements were carried out and we left Edmonton at noon on the 26th September. The journey by rail up to this point had covered 2,425 miles, and the elapsed time was seven and one-half days, a remarkably good run when it is remembered that the running time of passenger trains between the same points is about four days. Every possible consideration was shown us by the officials of both railways.

EDMONTON TO END OF STEEL.

Leaving Edmonton at noon on the 26th September, we had an uneventful run to Morinville, some twenty-two miles north. This is the farthest point to which the road is open for traffic. At Morinville we were joined by Mr. A. A. Wocks, who has charge of the construction of the line beyond that point, and he accompanied us to the end of the steel. About four miles north of Morinville our baggage car ran off the track and the front truck was torn off; this delayed us about two hours. The road-bed was in pretty bad shape and we ran quite slowly, not caring to risk any more derailments. About dark we stopped at one of Mr. Wocks' construction camps where we had supper and watered and fed the deer. The stag which had been sick for several days died here and the carcass was left with Mr. Wocks. This head was useless, as the horns had been removed before leaving St. Anthony. Resuming the journey about eight o'clock we ran very slowly all night, averaging about three miles an hour, and reached

the end of the steel about daybreak. Six puppies were born during the day, so that now, in spite of the loss of one dog, we have eight, although the new arrivals will be more ornamental than useful for some time.

BY WAGON TO ATHABASKA LANDING.

We found awaiting us at this point Mr. J. A. Dunn and Messrs. Leslie, Graham, and Hayward, all of whom are fire-rangers in the employ of the Department and who had been sent to build a corral and make other arrangements for our further journey. Mr. Dunn has been in charge of the fire-ranging in Jasper Park, while the others are the captain, engineer and cook, respectively, of fire patrol steamer No. 1, which the Department operates on the Athabaska river.

The builders of the corral evidently overestimated the size of the reindeer, as they had built a pole structure capable of containing moose or elk, but quite unsafe for reindeer. Considerable work was required to get the corral into shape to safely hold the deer, but this was accomplished in about an hour and the deer were then unloaded direct from the cars to the corral, which was on a bank a few feet above the level of the track.

Mr. McLaggan left by team at 9.30 a.m. for Athabaska Landing to arrange for suitable pens to be built in the scows and to try to get the crews together so that there would be no delay when the deer arrived. He took Mrs. Gear with him, at my suggestion, as we had no suitable accommodation for her in the camp and she could make the journey more comfortably with him than with us.

Mr. Dunn left camp about ten o'clock to engage teams to be on hand at daybreak of the following day and to purchase a load of green oats to be fed to the deer in order to save the small supply of moss remaining on hand. We had not previously fed anything but moss, but had found that the deer would eat green poplar and willow twigs and leaves and had resolved to experiment with green oats. I may add that the experiment proved entirely successful, as the deer seemed to relish the oats and we could not see that any ill effects resulted from the change of diet. We procured a further supply at Athabaska Landing for use on the trip down river. We spent the day in arranging our baggage in suitable shape for loading in wagons and in making halters to lead the ox deer. Mr. Dunn returned towards evening, having been successful in engaging ten teams.

Shortly after daylight on the morning of 28th September the first team arrived and we at once commenced to build crates inside the wagon boxes, to prevent the deer from jumping out and to keep them from being knocked about too much on the rough journey. The crates were merely slatted extensions making the wagon boxes about five and one-half feet high, enclosed by slats on top and divided into two compartments, fore and aft. From two to three deer, according to size, were placed in each compartment, so that each wagon accommodated from four to six deer. There were forty-two deer at this time, but four were oxen, broken to drive, and these we intended to lead, so that accommodation had to be provided in the wagons for thirty-eight; this required eight wagons. It had been suggested that the ox deer be led in front and the others driven after them, but, as the road for the entire distance runs through a bush country and as the deer were excited and strange to the country, it was considered safer to haul them than to risk delay and probably loss by their straying off into the woods.

A good deal of trouble was experienced in getting the deer loaded. All possible arrangements had been made to facilitate matters and a chute had been built so that the wagons could be backed directly up to the corral, but in spite of this it was found necessary to rope each deer and lead, or partly carry it into the wagon. There was so much trouble about the loading, the deer became so much excited and the loading took up so much time that we decided not to unload again until we could do so directly

into the scow at the Landing on the evening of the following day. We concluded that, while the close confinement in the wagons was apt to prove injurious, it would be less so than the excitement and handling incident to unloading and loading again from an open corral where the conditions for handling the deer were even less favourable

than at the original point of loading.

About eleven o'clock a.m. we finally got started with eight loads of deer and two loads of baggage, leaving one load of lumber, moss, &c., to follow by a team to be engaged later. After travelling about seven miles we unhooked for dinner at Stony Creek, and here I was fortunate enough to be able to hire a team to bring on the supplies we had left behind. We left Stony Creek at about 2 p.m. and reached Lewis' stopping place about 7 o'clock, having made about twenty-two miles. Mr. McLaggan met us about five o'clock, having completed the arrangements respecting the scows and crews. The roads were very rough and the deer had been pretty badly shaken up, but most of them were found to be in good condition and quite ready to feed when the usual supply of moss was put into their cages. One doe was found to be in bad shape, probably due to having been knocked down in the pen and trampled upon by the others. In order to relieve the overcrowding in some of the cages and to prevent similar injury to other deer Mr. McLaggan hired an additional team and we transferred three of the does to it, giving the sick one the rear pen to itself. Two of these deer recovered within a day or two, but the one that had been trampled died on the 29th September.

The following morning (29th) we started at 6.30 o'clock. Mr. McLaggan and I went ahead with a light team and reached the Landing about noon—distance about twenty-five miles. We spent the afternoon in completing the arrangements for our further journey and in purchasing supplies. Mr. McLaggan looked after the scows and crews and I made most of the purchases. The order for provisions was divided between the Hudson's Bay Company and Revillon Bros., while most of the hardware was purchased from Mr. F. R. Falconer. We were able to procure almost everything required, but unfortunately could not obtain any butter and only a small supply of potatoes and onions. Provisions for one year were purchased and a pretty complete outfit of hardware and camp equipment, so that upon arrival at Fort Smith the party should be able to maintain itself comfortably until the supplies can be replenished

next year.

The deer arrived about five o'clock in the afternoon, apparently none the worse of their rough trip in close confinement, and were immediately loaded on to the scows. The scows are about fifty feet long by ten feet wide and a space of about twelve feet in the middle of each had been converted into a deer pen by means of 2 in. x 4 in. uprights and 1 in. x 3 in. boards, making a pen about six feet high. Sliding bars had been left on the side of each pen and the wagons were backed into the water to the side of the scows and the deer unloaded without any trouble; in fact the handling at this point was much easier than at any point throughout the trip.

BY RIVER FROM ATHABASKA LANDING.

On the following day (30th) the supplies purchased on the preceding day were delivered and loaded and by mid-afternoon all was in readiness to start, except that the load of moss, &c., which had been left behind at the railway had not arrived. There had been a heavy rain during the night and the roads, which at the best are bad enough, must have made the hauling slow and heavy. However, the delayed load arrived about six o'clock and was promptly transferred to the scows. Some further delay ensued, owing to the difficulty experienced by the captain and pilot in rounding up the boatmen. The four scows finally got away about seven o'clock and shortly after eight Mr. McLaggan and I followed in the steamer. We overtook the scows within about half an hour and took them in tow, continuing until about nine o'clock when we tied up for the night at a point about seven miles from the Landing.

We were very fortunate in getting away from Athabaska Landing with so little delay, as even firms such as the Hudson's Bay Company usually find it difficult to control their crews and two or three days often elapse before they can be got together and started on such trips. Moreover, had we not got away on Saturday night we would have been compelled to wait until Monday, as we would not have been permitted to start on Sunday.

The arrangements respecting the shipment had so far been carried out without mishap, but at this point the first serious difficulty occurred. The contract for taking the scows down the river from Athabaska Landing to Fort Smith had been made with Captain Shot, an experienced and reliable river pilot. The agreement provided that Captain Shot was to be paid a fixed sum per scow and in return for that he was to furnish a pilot and crews and arrange for their subsistence and to personally take charge of and accompany the party. At the last moment Captain Shot informed us that, owing to the sudden and severe illness of his wife, he would not be able to go. There is no reason to doubt Captain Shot's good faith, as he has the reputation of being one of the most reliable rivermen in the north. Captain Shot placed the scows and crews in charge of Philip Atkinson who had already been engaged by him as pilot, and he also sent one of his own sons to assist and to pilot the steamer back up river. The arrangement worked very well as far as I accompanied the party and Philip Atkinson has the reputation of being quite as competent a river pilot as Captain Shot, but some difficulties arose later over the terms of engagement of the crew.

On the following morning (1st October) we re-arranged some of the loads and trimmed the scows so as to make towing easier. Just as we were about ready to start we met Mr. F. J. P. Crean, an engineer in the employ of the Department, who was returning to civilization after some eighteen months of northern travel. Mr. Crean and his party, which included Mrs. Crean, were travelling by one of Mr. Jas. Cornwall's steamers, which stopped for a few minutes to permit us to exchange greetings and the latest news. We again started down stream about \$30 o'clock and made good progress until about eleven, when we stuck hard and fast on a mud bar. After trying unsuccessfully for an hour or more to extricate ourselves from this unpleasant situation, without other result than to get more firmly imbedded in the mud, we finally cut the scows loose and, one by one, poled them off the bar and sent them adrift with a crew of two men each. About two o'clock we managed to work the steamer free and again started down river, picking up the scows as we passed them. We tied up for the night at Calling river, having made, in all, some forty-eight miles.

The next morning we got away about seven o'clock and ran steadily all day arriving about dark at Bentley's trading post, about a mile above Pelican rapids. There is a flowing well of natural gas near the river bank at this point which has been burning more or less steadily for some twelve or fourteen years. I understand that the gas was discovered and tapped by some men who were boring for petroleum several years ago, and that efforts have since been made to stop the flow, but without success. At present the gas is escaping from a pipe some two inches in diameter a couple of feet above the ground and the flame shoots into the air some thirty or more feet. It is quite spectactular, especially at night, and is evidently a favourite camping place for river men and others.

We were advised by Mr. Bentley that it would not be safe for us to take our steamer further down the river, as the water was low and still falling and we would find it difficult, if not impossible, to come back against the current. Whether or not Mr. Bentley overestimated the difficulties of the return journey I don't know, but after thoroughly discussing the whole situation Mr. McLaggan and I concluded that it would serve no useful purpose to take the steamer further. Up to that point we had been able to tow the four scows at the rate of about seven miles per hour, but from Pelican rapids onward the current becomes swifter, although there are intervals of slack water, and the scows should be able to make fair time by the use of sweeps.

In any case we could only go as far as Grand Rapids, some sixty miles farther down, and the time saved would not, in our opinion, have justified the risk of having to leave the steamer so far down river for the winter. We decided, therefore, to turn back with the steamer and to send the scows on in charge of Mr. J. A. Dunn, with Philip Atkinson as pilot.

The morning of the 3rd October was spent in again rearranging the loads of the scows so as to facilitate rowing and steering and about noon the four scows started on the last stage of their journey. A tent had been put up for Mr. and Mrs. Gear on the stern of the leading scow and a cooking stove set up in it. Mr. Dunn and the two herders, McNeill and Broomfield, also found sleeping accommodation on this scow and it was arranged that Mrs. Gear would cook for the party. Philip Atkinson took

personal charge of this scow.

The difficulty over the engagement of the crews, to which reference has previously been made, first came up here. Atkinson reported that Capt. Shot had only engaged the men to go as far as Fort McMurray, some one hundred and forty miles below Pelican rapids. For the further journey of some two hundred and fifty miles from Fort McMurray to Fort Smith Capt. Shot had agreed to take down some packages of freight for Colin Fraser, a down-river trader, and in exchange for this service Mr. Fraser was to have towed the scows on from McMurray with his steamer. Through some oversight or misunderstanding the freight for Mr. Fraser was not taken on at Athabaska Landing and, consequently, there is no reason to suppose that Mr. Fraser would be willing to carry out his part of the bargain. Mr. McLaggan had previously procured for Mr. Dunn a letter of credit on the Hudson's Bay Company for five hundred dollars, to provide for any emergencies that might arise and he now authorized Mr. Dunn to engage new crews at Fort McMurray, should it become necessary. or to arrange with Colin Fraser, or any other steamboat owner, to tow the scows on from that point. Any payments made by Mr. Dunn for such service were to be reported at once to Mr. McLaggan in order that the amount might be deducted from the contract price to be paid to Captain Shot. This was the only arrangement that could be made under the circumstances and I can only express the hope that it worked out satisfactorily. It was our intention to take this matter up with Captain Shot on our return to Athabaska Landing, but he was not in the village when we got back.

At 12.30 p.m., Mr. McLaggan and I started on the return journey on the firepatrol steamer and reached Athabaska Landing at 9 p.m. on the 5th October. The actual running time on the return journey was thirty hours and the distance one hundred and twenty miles, which is not bad time for a small steamer against a strong current. On the trip up river we met Mr. Goodspeed and Mr. Tibbetts, engineers of the Public Works Department, going down in a canoe with two Indian paddlers to

inspect the channel improvement work at Grand Rapids.

I was, fortunately, able to secure passage in the semi-weekly stage which left Athabaska Landing on the following day (6th October) and reached Edmonton on the evening of the 7th. Mr. McLaggan was delayed in the Landing paying some accounts and did not leave until later in the day, arriving at Edmonton on the 8th. I left Edmonton on the night of the 3th and, after spending one day in Calgary, reached Ottawa on the morning of the 14th October.

GENERAL.

I believe I am right in assuming that this shipment of fifty deer was intended merely as an experiment with a view to determining two things: first, if the deer would stand such a long, hard trip at this season and, second, if suitable feeding ground could be found for them in the vicinity of Fort Smith and if the deer could be protected from dogs and Indians. While we have not yet received reports of the final stage of the journey we have sufficient information to justify the statement that

these reindeer have proved themselves excellent travellers and, barring such an accident as shipwreck in the rapids, there is every reason to suppose that at least forty of them will safely reach their destination. Had it not been for disease due to the gypsum the loss would have been trifling, probably not more than two or three, and this in spite of the fact that the shipment was made at a peculiarly unsuitable season. The rutting season generally begins between the tenth and twentieth of September and during its continuance the deer are more difficult to handle than at any other time. I do not know a great deal about the habits of reindeer but assume that the season, in this instance, will merely be postponed until the deer reach their destination, about the middle of October, and that it will not be lost for the year. It will be unfortunate if no fawns are born in the spring of 1912.

Autumn is the only season when reindeer can safely be shipped over this route. In winter the drawback is that the northern rivers are frozen and the deer could not well be taken beyond Athabaska Landing; in early spring the does are heavy with fawn and later are suckling their fawns, while in summer the great heat would probably prove disastrous.

With regard to feeding grounds I made careful inquiries from men familiar with the north country and am informed that there is an abundance of deer moss within reasonable distance of Fort Smith, or Smith Landing, particularly the latter, and that it is plentiful over practically all of the north. We found quite a good deal of moss near our camp at the end of the railroad and picked several sacksful there for the deer; we also noticed it at many points along the road to Athabaska Landing and along the river, so that there seems to be absolutely no doubt of a plentiful food supply.

The question of protection from dogs and Indians will depend very largely upon the good judgment and watchfulness of the herders and cannot be determined until further reports are received next year. In my opinion the deer camp should be established at least fifteen to twenty miles from any settlement and if this is done and reasonable care shown there is no reason why the experiment should not succeed.

In the event of the experiment proving reasonably successful I would strongly recommend purchasing about two hundred more deer, chiefly young does, and shipping them in early next fall. The number already purchased is not enough to justify the expense of keeping them and it will be many years before, from such a small beginning, a herd of reasonable size can be raised, but with a start of some two hundred does and about forty stags a rapid increase could be confidently expected, while the cost of management would remain about the same, as three herders could look after three or four hundred deer as easily as after forty. There is also the question of apprentices to be considered. It is understood that the herders now with the deer will train others to succeed themselves and that these apprentices, to be selected from Indians in the vicinity, will be housed, fed and clothed at the expense of the government during their time of apprenticeship. It would hardly pay to do this unless the herd were much larger and it is doubtful if a very small herd would sufficiently interest the natives to make them willing to take up the work. There is no doubt that by next September the Canadian Northern railway will be in operation to Athabaska Landing and that the whole trip from Newfoundland to Fort Smith can be covered within a month and probably with a very small percentage of loss.

As an alternative I would suggest attempting to capture and domesticate young barren-ground caribou which migrate southward to the vicinity of Fort Smith every winter. There is little difference between the species, except in the size and formation of the horns; if there is any difference in size the caribou are slightly larger.

PUBLIC INTEREST IN REINDEER.

All along the route from Quebec to Athabaska Landing great numbers of people came to the stations and looked at the deer and a good deal of interest seemed to be

taken in the experiment, judging from the questions asked. The ear markings were the subject of a great deal of comment. All the deer were marked by a cropped ear, so as to permit of ready identification at a distance, but in addition to this each deer had an aluminum button, or disc, in the unmarked ear. These discs are marked with the year of birth and may also bear such addditional markings as will distinguish different families, or species, if required. Mr. Holt, of Quebec, was greatly interested in these discs and was of the opinion that he might advantageously use them to distinguish different families of foxes which he is successfully breeding in captivity on his estate at Montmorency Falls. I may add that Mr. Holt very kindly offered the use of a pasture at Montmorency Falls, so as to give the deer a chance to recuperate after their confinement on board ship, but, while I greatly appreciated his kind offer, I was unable to accept it owing to the necessity of getting through to our destination before the Athabaska river froze up.

HERDERS.

The herders were selected by Dr. Grenfell and their contracts for service were prepared and executed under his direction. Mr. Nathaniel Gear, the chief herder, is thirty-three years of age and was born at Groswater Bay, on the Labrador coast. He has lived at Cape Eliek, about 200 miles north of his birth place, for the past fifteen years up to October, 1908, since which date he has been with Dr. Grenfell's deer herd at St. Anthony, Newfoundland. He learned the management of reindeer from the Laplanders who accompanied the original shipment of deer to St. Anthony and remained with them for two years after their arrival. For two years prior to his engagement by the government Gear was in charge of the herd. According to Gear's statement the herd purchased for Dr. Grenfell comprised 250 does and 50 stags and oxen and reached St. Anthony in December, 1907. Mr. Gear is married, but has no children. His wife accompanied him to Fort Smith, where she will cook for all the herders in return for free rations to be furnished by the government. Mrs. Gear is also a native of the Labrador coast.

William McNeill, the second herder, is twenty years of age and was born at Island Bay, on the northern part of the Labrador coast. He served a two years' apprenticeship with Dr. Grenfell's herd.

John Broomfield, the apprentice herder, was born at Groswater Bay and is twenty years of age. He served an apprenticeship of one year with Dr. Grenfell's herd.

All the herders are robust and apparently in perfect health and are thoroughly familiar with the handling of deer. They should be able to readily adapt themselves to the new conditions of life in northern Canada, as they have from childhood been accustomed to the hardships and vicissitudes of the life of hunter and fisherman on the inhospitable Labrador coast.

PHOTOGRAPHS.

I regret that I was unable to take good photographs of many of the most interesting incidents of the trip. It usually happened that there were so many other and more important things to be done at such times that I was compelled to forego the pleasure of using the camera. The pictures which accompany this report will, however, give a fairly good idea of the deer and of the conditions under which their long trip was made.

Appended hereto are a statement of the expense so far incurred in connection with this shipment, and a schedule of the supplies purchased and sent to Fort Smith.

Respectfully submitted,

E. F. DRAKE.

APPENDIX TO REPORT ON REINDEER SHIPMENT.

DEPARTMENT OF THE INTERIOR, FORESTRY BRANCH.
OTTAWA, March 31, 1912.

R. H. CAMPBELL, Esq.,
Director of Forestry,
Ottawa.

SIR,—I beg to submit the following additional report respecting the reindeer experiment. This information has been obtained from letters and reports submitted by Mr. J. A. Dunn and Nathaniel Gear, and takes up the account of the journey from the point where my report of October 25, 1911, left off.

The party reached Grand Rapids, on the Athabaska river, about four o'clock in the afternoon of October 4, having run the sixty miles from Pelican rapids in about twenty-eight hours, including the time lost by tying up at night. The stage of water was very low and it was found necessary to transfer most of the freight and to reload below the rapids. The deer were not unloaded and all the scows went through safely.

Good progress was made until the morning of October 16, some 260 miles having been covered in this time. On this morning, however, a heavy head wind was encountered and the scows were blown into an eddy and it was found impossible to proceed. Strong winds, with snow and rain, continued until the 20th, the supply of moss ran short, the scows leaked badly from scraping over the rocks in the rapids, and six deer died.

On the 20th, the weather conditions improved and the party again got under way, making twenty miles during the day. They were also fortunate in being able to pick sixty sacks of moss for the deer. The following day they made a run of fifty miles, but on the 22nd and 23rd, head winds were again encountered and but ten miles were covered.

Lake Chipewyan was reached on the evening of the 25th, and, after waiting until nine o'clock at night for the wind to die out, an attempt was made to row two scows across to the Hudson's Bay Company's post on the north shore. The pilots proved incompetent and the scows were tied up to a root until morning. In the morning it was necessary to break ice for about half a mile before getting into open water, after which sail was hoisted and the remaining distance was covered in good time. The crews then returned to the mouth of the river for the remaining scows, which were safely brought across arriving at about two o'clock on the morning of October 27.

Here the party were met by a steamer which had been sent up from Fort Smith to tow the scows down the Slave river to that point, a distance of some eighty miles. They left Fort Chipewyan at 4 p.m., on the 28th, and made about nine miles, when they ran on a sand-bar where they remained all night. The following forenoon was spent in getting the steamer off the bar and in the afternoon ice was encountered, so that only about seven miles were covered during the day.

On October 30 the river was frozen nearly across and there was so much ice in the rapids that the captain of the steamer refused to go any farther. The deer and freight were unloaded, the scows were drawn up on the bank and a permanent camp was established for the winter at a point some seventy miles south of Fort Smith and about twelve miles from Fort Chipewyan. There is an abundance of moss for feed and the camp is sufficiently removed from any settlement to insure safety from dogs.

Mr. Dunn remained with the herders until a comfortable cabin had been built and the men and stores safely housed, after which he returned to Edmonton, the greater part of the journey being accomplished on snowshoes with a dog team.

The deaths occuring during this stage of the journey were as follows:

October	18th			 	 	 2 does
"	19th			 	 	 3 "
"	20th			 	 	 1 doe
66	30th			 	 	 1 "
"	31st			 	 	 1 "
						1 ox deer
						_
	•	Tot	al	 	 	 Ð

There are now thirty-two deer remaining out of the original fifty, viz.: 24 does, 5 stags and 3 oxen, and the latest reports show that they have wintered well and are in much better condition than when they left St. Anthony.

The difficulties encountered between Grand Rapids and Fort Chipewyan were due, chiefly, to the fact that the scows were under-manned. When travelling in slack water or against head winds, there were not enough men to handle the scows, in spite of the fact that Mr. Dunn and the three herders worked at the sweeps. This delayed the party and there was further delay due to lack of energy on the part of the crews, but this last is always to be reckoned with when dealing with halfbreed boatmen. The stock of moss and green oats taken from Athabaska Landing would have been sufficient to last for the whole journey if it had been accomplished in reasonable time. The death of the eight deer in the latter part of October was directly due to this delay and the consequent shortage of feed.

Reports received from the Departmental Agent at Fort Smith indicate that suitable grazing ground and abundance of reindeer moss may be found within about fifteen miles of that point and the deer will be transferred there as soon as spring opens—probably about the end of May. From present indications there will be no fawns born this spring, owing, no doubt, to the close confinement and long journey during the rutting season last fall. This is greatly to be regretted, but could not be avoided.

Respectfully submitted,

E. F. DRAKE.

No. 38.

REPORT ON IRRIGATION.

DEPARTMENT OF THE INTERIOR,

IRRIGATION OFFICE,

CALGARY, April 20, 1912.

R. H. CAMPBELL, Esq.,
Director of Forestry and Irrigation,
Ottawa.

SIR,—I have the honour to submit herewith my annual report of the work done under my charge during the year 1911 on Irrigation and Canadian Irrigation Surveys.

I have the honour to be, sir,

Your obedient servant,

F. H. PETERS, Commissioner of Irrigation and Chief Engineer.

REPORT ON IRRIGATION AND IRRIGATION SURVEYS,

BY

F. H. Peters, A.M. Can. and Am. Soc. C.E., D.L.S., A.L.S., Commissioner of Irrigation.

It may be said with certainty that the general public does not realize the great importance or the large scope of the work which is being carried on by the irrigation office at Calgary. In an endeavour to correct this, attention is drawn to the fact that during the season 1912-13 twenty-two civil engineers will be employed on the staff, and, to mark the significance of these figures, it should be noted that this is the largest engineering staff connected with any one office of the Dominion Government except the office of the Public Works Department at Ottawa. Another significant fact is that the irrigation office carries on its property returns 45 horses and the necessary equipment of wagons, &c., all of which are used during the summer in carrying on the fieldwork.

The irrigation office may well be said to be the guardian of the water resources of the provinces of Alberta and Saskatchewan, and this naturally carries with it great responsibilities. Much of the work done by this office must necessarily be for the benefit of future generations, and this, unfortunately, does not tend to make the work popular with the people of to-day. This is especially true of the work of stream measurement that is being carried on, and, because there is plenty of water for everybody to-day, even the most interested parties, who are themselves licensed by the government to use water, do not appreciate the work and do not realize that a perfect system of stream measurement means a perfect safeguard to their water-rights in the future, and that every dollar spent to-day in prosecuting this work means many dollars saved in the future in the prevention of litigation that must arise if the load that is placed on every stream is not carefully guarded to-day. Our neighbours to the south have learned this lesson by costly and bitter experience, and we may, if we will, profit by their experience and avoid the mistakes which they made during the earlier days of irrigation development.

The work has been carried on as efficiently as possible, and with due regard to economy, but a considerable increase in the appropriation is necessary if the work of administration of water resources is to be carried on in a manner commensurate with its importance.

GENERAL INFORMATION REGARDING IRRIGATION IN ALBERTA AND SASKATCHEWAN.

The irrigation office has jurisdiction over all water-grants made in the provinces of Alberta and Saskatchewan (except grants for water-power purposes, which are handled by a separate branch) and it can be easily understood that the patrolling of this vast area requires a large staff and a sound organization.

The remarks here following relate almost entirely to the work of irrigation inspections. The work done by this office naturally divides itself into two separate branches: irrigation inspections, together with reservoir site surveys, &c., and the stream measurement work. The two are closely associated and must go hand in hand, but are submitted separately in order to keep down the bulk of each volume, and also because the report of progress of stream measurements is nearly all composed of tables of gauge-heights and discharges and is more fittingly published in a separate report for convenience of reference; a brief, general report on stream measurements is, however, appended hereto.

The two provinces cover an area of 504,190 square miles and extend for 540 miles east and west and 420 miles north and south.

The province of Alberta includes an area of 253,540 square miles, made up of 251,180 square miles of land and 2,360 square miles of water. The province of Saskatchewan includes an area of 250,650 square miles made up of 242,332 square miles of land and 8,318 square miles of water.

In order to give an idea of the extent to which irrigation is now being carried on in the western provinces the following brief summary is given.

The total amount of water granted by the Dominion Government in the two provinces is 23,865 cubic feet per second. Of this total amount 23,536 c.f.s. have been granted for purposes of irrigation, leaving 329 cubic feet per second divided up between the other three classifications; that is, domestic, industrial and other purposes.

In Alberta the total amount of water granted for irrigation purposes is 23,114 c.f.s., or enough to irrigate 3,467,100 acres of land, according to the authorized duty of water which is 2.023 acre-feet per acre.

Of this quantity four large companies have 22,500 c.f.s., leaving 614 c.f.s. divided up among 320 individual users; excluding from these 24 applicants who each have an average grant of about eight c.f.s., we get figures for the average individual water user, viz.: 414 c.f.s. divided up between 296 individual users, which gives each one 1.40 cubic feet per second, or enough to irrigate 210 acres of land.

Of the four large companies mentioned above, the following facts may be stated. The Canadian Pacific Railway Irrigation Company has been granted from Bow river, near Calgary, 3,000 c.f.s. at low-water stages, 13,000 c.f.s. at high-water stages, and 15,000 c.f.s. at flood stages. It has approximately one million acres of irrigable land, and already has issued over 1,500 agreements to furnish water to settlers within this tract.

The Alberta Railway and Irrigation Company has been granted from Belly river 500 c.f.s. at all stages of flow, from Milk river 500 c.f.s. at low-water and 1,500 c.f.s. at high-water and flood stages, and from St. Mary river 500 c.f.s. at low-water and 2,000 c.f.s. at high-water and flood stages. It should be noted, however, that the total amount of the grants from Milk river and St. Mary river have been somewhat modified under the terms of the International Waterways Treaty recently made between

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Canada and the United States. This company has already issued water agreements to over S00 water-users.

The Southern Alberta Land Company has been granted from Bow river 2,000 c.f.s. at high-water and flood stages, and from the South Saskatchewan river 1,000 cubic feet per second at all stages. This company has developed a very large reservoir for the storage of flood waters, in order to utilize its high-water and flood license from Bow river. The works are not yet completed and therefore the company has not as yet entered into any agreement to supply water to actual users. The company controls about 400,000 acres, about half of which is irrigable.

The Alberta Land Company, operating as a subsidiary company to the last named company, and diverting water through its works, has a grant of 500 c.f.s. from the Bow river at high-water and flood stages. The works of this company are not yet completed.

In the province of Saskatchewan irrigation has not been undertaken to nearly the same extent as in the province of Alberta, and it has no large irrigation companies. There has been granted to date in Saskatchewan, for irrigation purposes, 423 cubic feet of water per second, and this quantity is divided among 241 individual users. This gives each one an average of 1.75 cubic feet per second, or enough to irrigate 262 acres.

In an endeavour to give some idea of the irrigation work that is now being carried on, the map published with this report has been prepared to show the position of the intake of each of the smaller schemes and also the territory covered by the large schemes. This map covers practically all the territory where irrigation is carried on, and by referring to it and to the above mentioned figures, it will be possible, with a few minutes' study, to get a fair idea of the size of the territory to be covered and of the area of land which is being irrigated.

PROCEDURE FOR GRANTING WATER LICENSES.

The work required in connection with irrigation inspections will not be well understood by those unfamiliar with the work, and, to outline in a few words what this work comprises, the following brief summary is given.

Licenses are granted by the Dominion Government, under the administration of the Minister of the Interior, for the use of water, under the following classification:—

- 1. Domestic uses.
- 2. Industrial uses.
- 3. Irrigation purposes.
- 4. Other purposes.

Industrial grants are given for the purposes implied by the name, but do not include the sale or barter of water. Where the sale or barter of water is concerned, the grants are classified as for 'other' purposes.

The procedure followed in granting water-rights is, briefly, as follows:

Any applicant for a water-right must first submit a memorial setting forth the purposes for which the water is required, and, accompanying this, must be general and detail plans showing where, and how, and for what purpose, he intends to use the water and what works he intends to construct or install. The next step is an inspection of the scheme by one of the government engineers, who reports upon the feasibility of the scheme, the question of water-supply and the character of the works to be constructed. The proposed scheme is then advertised in a local paper for six weeks, in order to give the local public notice of what is proposed and what water-supply and lands will be affected. Any protests which may be made against the proposed scheme are carefully investigated. Authorization is then issued for the construction of the necessary works, and a limit of time is placed within which the construction must be

completed. The Department's engineers inspect all schemes periodically during construction, and, finally, after the works have been satisfactorily completed and inspected, the water license is granted.

DIFFICULTIES IN CARRYING ON THE WORK.

In case any person should be interested enough to consider the size of the staff employed to do the work required, and to make a study of the cost of the work, it is only fair to the organization to detail here some of the difficulties met with in carrying on the work. These may be generally stated as the great area to be covered, the difficulties of transportation, and the great variety of the inspections to be made. instance, in the Maple Creek district, where a great many new schemes are being constructed at present, an inspection party starts out from Maple Creek and, perhaps after a twenty-mile move, has to make a complete survey of a new scheme, including in many cases a right-of-way survey over lands not owned by the applicant for waterright. As soon as this is finished the party will probably have to make a day's, or half a day's, move to a scheme which requires only an eye inspection by the officer in charge, and so the work goes on. A minute's consideration of this briefly sketched programme will bring forth clearly the two great factors of apparent waste; that is to say, a great deal of time is taken up in travelling about from place to place and, on account of the great variety of the inspections required, it is not possible to always keep all the men usefully employed. The party must be large enough to efficiently survey and inspect the larger schemes and is, therefore, at times unnecessarily large for some of the work required. This difficulty cannot be avoided, as, unless each party takes all the schemes that are in the same neighbourhood as they come, the waste of time in travelling would be out of all proportion to the work accomplished.

Again, take the case of the engineer for special inspections. This officer inspects the many schemes that are scattered all over the two provinces and these are so widely separated that he has to travel by train from place to place. He may have to travel half a day by train and then waste half a day in the hotel waiting to get an early morning start in order to make a long day's drive to some scheme thirty or forty miles from the railroad. Upon arriving at his destination he probably finds that he requires the assistance of a man or two to make a chained traverse of a scheme, and he may have to spend half a day getting these men from a neighbouring ranch or farm and then when he does get the men they, being unaccustomed to the work, naturally make very clumsy and slow assistants. To complete the inspection there still remains the long drive back to the railway and possibly another half day wasted in the hotel waiting to catch a train on to the next point. All of these factors combine to increase the cost of inspection work, but this is unavoidable under present conditions. The engineer assigned to this class of work must be a man of wide experience, as within a brief period he may have to inspect an irrigation scheme, a railway water-tank scheme, or a town water-supply scheme; his services are very often required as an arbitrator between the interests of some town wanting a water-supply and a number of persons who fear that their domestic rights from a certain stream are being encroached upon.

The difficulties met with by the office end of the organization at Calgary are those of directing the work which is being carried on at such distances and, in many cases, in localities where the mail facilities are very poor; and again those of studying the never-ending questions of the adequacy of the water supply from a given source, which, in many cases, owing to the lack of records of stream-flow, present problems that are well nigh impossible of definite solution.

Another great difficulty that is met with by the office staff is that the Commissioner, or his assistant, must examine and approve the design of the works and lay-out of every scheme that is submitted. In almost every case the question arises where to draw the line between insisting on permanent, and therefore expensive, works and

those of a temporary nature which are within the limit of the applicant's means at present. In the first case the necessary expense of the works may be unduly burdensome upon the applicant, while in the second case it is usually found that if temporary works are once allowed it is almost impossible to get the irrigator to improve the works at a later date when he is able to afford the expense. Another separate study for each case is the class of material, particularly for dams, that is within the means of the applicant in any particular locality.

DIVISION OF WORK INTO DISTRICTS.

The work of inspection is divided into two districts within which the bulk of the work lies, viz.: the Maple Creek district and the Calgary district; the other schemes, which are widely scattered, are inspected by so-called special inspectors.

The Maple Creek district is under the especial charge of a division engineer, who has under his control two assistant engineers, each with a field-party working under his direction. The Calgary district is patrolled by one district engineer with a small party. Separate reports are appended from these two officers, as well as from the special inspections engineers, and, as these officers take up in detail the various points in connection with their districts and work, and also describe the limits of the several districts, no further mention of them need here be made.

DETERMINATION OF THE LOW, HIGH AND FLOOD DISCHARGE OF STREAMS.

In order that the following may be intelligible it is necessary to explain the procedure in granting water-rights against any stream or other source of supply. The procedure is to consider that every stream has three separate stages of flow; that is to say, low-water stage, high-water stage and flood stage, and each water-license is issued against a specified stage of the stream flow.

This procedure will be made clear by the following illustration. Suppose a creek has a low-water, high-water and flood discharge between the limits, respectively, of 0 to 10, 10 to 30, and 30 to 50 cubic feet per second. The first licenses against the stream will be issued for 'all stages' of flow until the total of 10 c.f.s. is reached. The next licenses will be issued for 'high-water and flood' stages until these, together with the 'all stages' licenses, reach the total of 30 c.f.s. After this any licenses that may be issued will be for 'flood' stages, until the total of all the licenses reaches the maximum of 50 c.f.s., after which all applications for water-licenses against the stream will be refused.

Now, in order that, under average conditions, there may always be enough water in the stream to fulfil the obligations of all the licenses issued, it is clear that the records of this office must show definitely the quantity of water in the stream, under such average conditions, at the three stages above mentioned. It is also clear that it is a most difficult matter to determine accurately the flow of the stream at the three respective stages; in fact, these figures can only be determined with even a fair degree of accuracy after a long series of stream measurements has been carried on on each stream. It is at this point that the work of stream measurements is indivisible from the work of irrigation inspections.

At the present time the quantities for all the streams, shown against the stages of low, high and flood discharge, are most inaccurate, as they indeed must be, because at the time when they were computed several years ago practically no continued series of stream measurements had been made.

During the present winter the matter of determining these quantities with some degree of accuracy is being actively taken up. The Department now has fairly complete records of stream-flow on several streams from the year 1908 to the year 1911,

inclusive, and on most of the important streams used for irrigation purposes the records of stream measurement date back to 1909. The procedure being adopted is as follows: A separate sheet is being prepared for each stream and on this is being plotted as a profile the mean monthly discharges for all the years during which records have been obtained. The profile for each year is plotted with a different coloured ink, so that the different years can be readily distinguished. After a careful study of each sheet two horinzontal lines are drawn across the profiles showing the three stages of flow as arbitrarily determined from the study. The horizontal lines are drawn only in pencil, so that at some future time, when more records of stream-flow are available, they may be shifted if necessary to more accurate positions as shown by the increased length of the period over which the stream measurements have been gained.

This arbitrary determination of the stage of the streams is a most important matter, as, if these determinations are in error, the streams will either be over-recorded or under-recorded. In the first case, the existing rights of the first license will be jeopardized, and, in the second case, applications will be refused when sufficient water is really available and might be put to beneficial use for irrigation or other purposes.

OFFICE WORK.

A great deal of office-work is required to keep the hydrographic records up to date and in proper shape. To understand this, it should be realized that about 130 cards of gauge-height observations are received at this office each week from the various gauge-height observers. These cards all have to be checked over and the information taken from them and noted on the proper office-forms for purposes of record. A good deal of correspondence springs from this source in writing to the observers to get records submitted which have been overlooked, or in order to get satisfactory explanation of gauge heights that cannot, perhaps, be deciphered in the office. Again, all the hydrographers are required to send in their note books of stream measurements as they are filled up, and these, also, have to be checked and then filed away so that the information may be readily available for the hydrographers when they return to the office in winter for the purpose of working out the records from their summer's field-notes.

The office staff, generally, has throughout the past season been overworked, owing to the fact that the staff employed was not large enough to handle the work properly. This is a most undesirable state of affairs as it does not lead to, or allow of, the best work being done. When everything has to be rushed through in a hurry, as has been the case, mistakes and slips are bound to occur, no matter how great effort is made to avoid them.

The following list gives a summary of the correspondence, plans, documents, &c., that were handled in the office during the fiscal year ending March 31, 1912.

Letters received	6,939
Letters sent	0,660
Applications for water-rights recorded	67
Plans with applications for water-rights (in duplicate)	67
Right-of-way easements recorded (in triplicate)	32
Transfers of applications recorded (in triplicate)	25
Right-of-way plans recorded (in quadruplicate)	32
Water agreements filed (in quadruplicate)	181
Notices of cancellation of water agreements (in triplicate)	77
Notices of transfer of water agreements (in triplicate)	20
Applications to cross road-allowances recorded	41
Applications for free right-of-way over Crown Lands recorded.	36
Notices for publication prepared	67

Plans prepared	466
Blue-prints made	1,161
Certificates issued under Section 20 of the Irrigation Act	62
Certificates issued under Section 33 of the Irrigation Act	39
Number of licenses recorded (in triplicate)	51
Reports received and dealt with	492
Weekly reports received from Engineers	670
Reports of discharge measurements (Form H. 4) received	1,490
Weekly reports of gauge heights (Form H. 2) received	4,200
Descriptions of regular gauging stations (Form H. 1)	
received	130
Reports of changes at River Stations	57

DIFFICULTIES AND DEFECTS IN THE SYSTEM OF IRRIGATION FARMING.

It may not be out of place here to draw attention to some of the troubles and faults that are experienced in connection with the average irrigation schemes of

to-day.

Without wishing to cast any reflection on the science of dry farming, it may truthfully be said that irrigation farming is certainly a scientific work, and a general fault that is found is that the average irrigation farmer does not understand the proper methods of applying the water to his land. With the fixed idea in his mind that the thing to do is to put water over his land he proceeds forthwith to do this, without any thought of consulting the requirements of any special crop, and very often without any study of the natural features of the ground that lend themselves to the spreading of the water over the land. He thus very often works against nature instead of with her, gives himself much extra, and very often wasted, work, and then, when the harvest season comes, says to himself, 'I have irrigated my land; why have I not raised a bumper crop?'

This procedure being carried on for several years naturally tends to depreciate in the farmer's mind the benefits that are reaped from the proper irrigation of field crops, and hence it is found that in many districts, and, almost, it may be said generally, the great benefit that might be reaped from a properly conducted irrigation of

field crops is not realized or understood.

Another serious drawback to irrigation in many sections of the west, and one which is not the farmer's fault, is the very changeable seasons that are experienced in the matter of rainfall. In many of the southern parts of the United States where irrigation flourishes, the climatic conditions are practically a constant. The farmer can rely upon almost a fixed number of hours of dry weather with an abundance of sunshine, and he can thus determine in advance when he will have to apply water and how much he will have to apply. This is not the case in Alberta and Saskatchewan. As a citation of a good example of this, the season of 1910 was so dry that many fields of grain were withered before they could mature; on the other hand the season of 1911 was so wet that the period of growth was prolonged and much of the grain was frostbitten before it could mature, and the country in general suffered from a late harvest. The irrigation farmer has, therefore, to watch the weather with the greatest care and, although he may not need them, has always to keep his ditches ready for instant use. Unfortunately, however, it has been found that during the wet seasons the irrigator allows his ditches to fall into a state of more or less disrepair and leaves them this way during the next season, and perhaps the next, until some day his crops are in urgent need of water, when his ditches are found to be in such a bad state of repair he cannot run the water through them on his land and therefore suffers a cropfailure as the result.

Another point which is deserving of comment is what may be termed the 'grain irrigation illusion.' The irrigation by a farmer of a comparatively small field of grain certainly has its place in a proper system of rotation, but the farmer should be warned that the irrigation of a large grain crop is certainly not the easiest, the most practical or the most remunerative way in which he can apply the water to which he is entitled. Owing to the fact that there is usually a period of only about fourteen days (possibly twenty-one days) in which water can be applied to a grain crop, it is necessary to apply the water very rapidly, which is difficult. Practically it would seem, also, that only some system of flood irrigation is possible for this crop and this requires a very even piece of ground in order that the water may be spread easily and evenly. One great inherent drawback to the matter generally is that the farmer, in leaning toward the irrigation of large areas of grain, is leaning toward a magnified form of soil robbing, which must be the result of the continuous raising of irrigated grain crops on any piece of land.

The tendency of farmers to specialize in grain irrigation is a most serious menace to any large irrigation company, because the fact of all the water-users growing a crop which requires a large amount of water within a very short period would make it absolutely impracticable and uneconomical for the company to construct its main ditches with a capacity sufficient to supply the great demand for water within so short a period. For this reason a practice of diversified farming is absolutely essential among farmers

whose water-supply is furnished by any large irrigation company.

What is termed by the irrigation office the 'Calgary district' (that is, the district lying, generally speaking, between the Canadian Pacific railway, from Calgary to Macleod and the foothills of the Rocky mountains) comprises most of the oldest small irrigation schemes, and many of these have fallen into a very bad state as regards the condition of the works. This is probably due to the fact that this district has recently experienced a series of wet years and this has led the irrigators to feel that they no longer require their irrigation ditches.

Many of the older water-users well remember the dry years of the past, when their very existence depended upon their irrigation schemes, but a general feeling now seems to exist, for some reason which nobody can explain, that drouth need no longer be feared in this district. No man can predict the weather conditions of the future, but every evidence that can be produced would tend to show that the weather conditions rotate in a definite cycle of years and that dry years will probably come again. For this reason every holder of a water-right to-day should look forward for his own protection to the time when his irrigation ditch may again become a necessity, and should keep his ditch in sufficiently good repair to allow him to retain his water right.

CANCELLATION OF LICENSES FOR NON-USE OF WATER.

Under the provisions of the Irrigation Act this department should not permit any person to retain a water-right unless his works are in such condition as to allow him to put the water which he has been granted to a beneficial use, and hence when the owner allows his works to become ruinous and refuses, or neglects, to repair them, the department has no course open to it other than to cancel the water-right. In this respect the department realizes that the water-user may not require to use his ditches every year, and in judging the condition of the works has laid down what is considered to be a very fair and just rule upon which to base the judgment whether or not the works are in a sufficiently good condition of upkeep; that is to say, any licensee shall be held to have abandoned or ceased to use water whenever at any time he allows his whole works, or any part thereof, to fall into a state of such bad repair that he cannot, with the help that he usually employs on his establishment, put his works in a sufficiently good state of repair within one week's time to allow him to divert the proper quantity of water through them and apply it beneficially on his land.

It can readily be seen that the department must insist on this policy, as otherwise it would permit of persons gaining water-rights and holding them indefinitely without putting the water to any beneficial use, to the detriment of other persons who would make beneficial use of the water were it available for them.

FUTURE WORK OF THE IRRIGATION OFFICE.

An attempt has been made in the foregoing pages to deal with the work of the irrigation office in a general way only. For a detailed description of the progress of the work in the several districts reference should be made to the reports appended hereto which have been submitted by the district engineers. Several special features concerning the work have been taken up and are included in this report under separate headings.

As regards the future work of the irrigation office some comment may be not inappropriate in this report, as the commissioner, being in close touch with the practical end of the work, is probably in a better position to realize the necessities of the future than any other person.

DEPARTMENTAL CONTROL OF NATURAL RESOURCES.

The first point to be taken up is perhaps the most important one, and it is indeed most urgent, for it concerns the policy which the government is pursuing in investigating and controlling its natural resources. The matter may be tersely put by quoting the subject of an address by George H. Maxwell, director of the Pittsburg Flood Commission before the Nineteenth National Irrigation Congresss held at Chicago in December last, the subject of which was:—

'One and indivisible: forestry, irrigation, drainage, navigation. The rivers are the greatest asset of the nation when regulated for all beneficial uses.'

The last six italicized words are the ones to be studied. 'The rivers to be regulated for all beneficial uses.' For the Canadian west the indivisibles might better be stated as: 'Forestry, Irrigation, Drainage and Power Production.' The point which it is desired to bring out clearly is that, as the rivers must be regulated for all beneficial purposes in order to develop their maximum potentiality, so should the regulation of all the beneficial purposes be carried out by one department, so that in studying any scheme of conservation every beneficial use may be given due consideration. Forestry, irrigation and drainage are at present in one branch of this department, under the director of forestry, but the investigation and regulation of power production is a separate branch. It is most important that this work should be included in the work of the irrigation office, or at least placed under the direction of the same head, the director of forestry. The water-power branch has its head-quarters at Ottawa, far removed from the scene of its work, and it has no organization in the west with which to carry out the necessary investigation. The irrigation office, on the other hand, has its head-quarters at Calgary, and has a well organized establishment and a staff of engineers familiar with western conditions. In concluding this topic the case of the Bow river is most illustrative. The government anticipates reservoiring the waters of this river and in doing so it must consider the claims of irrigation and also of power production. The claims of these two industries are antagonistic, in that irrigation requires the stored waters for use in the summer and power production requires the stored waters for use in the winter. The two demands have to be adjusted and balanced, and it would be waste of space to further explain that this question can far better be studied and adjusted within the confines of one branch of the department than by two separate branches, neither of them responsible to the other.

The people in the United States, as exemplified by Mr. Maxwell's paper, have after long years of bitter experience come to the conclusion that these matters are indivisible; cannot we save all the inevitable blunders and heart-burnings of the future by profiting by their experiences and having this matter adjusted at once?

DETERMINATION OF THE PROPER DUTY OF WATER.

There exists to-day an urgent necessity for investigations to be carried on by the government to determine the best methods for the practical application of water to field crops. In this regard the most important investigations necessary are those to determine the proper duty of water. The case is most concisely stated as follows: The government has arbitrarily determined and set forth the legal duty of water and, therefore, as a duty to the public and particularly to that portion of the public which this regulation concerns, it should have data to prove that the regulations in this matter are correct and proper. At present, data on this subject are woefully lacking. At the time that the duty of water was determined irrigation was in its infancy in western Canada, and the officials of that day could not do otherwise than base their judgment on conditions existing in other countries, but, as none of these countries have climatic and soil conditions exactly similar to those in Canada, it is necessary to carry on investigations in the sections of the country where the water is actually to be used. In addition to this indisputable fact, the great majority of investigations made in the United States (where the conditions are the most nearly parallel to our own) have been made on small patches of ground, and therefore have not been made under conditions exactly similar to the case of the practical irrigation farmer.

To properly determine the actual duty of water experiments should be made on large fields with the water applied in exactly the same manner as the farmer would apply it in practical irrigation; that is to say, let the farmers do the irrigating themselves on selected fields under the supervision of government engineers, and let the engineers collect and compile all the relevant data. This procedure should be supplementary to investigations made on any experimental farm, as the latter are looked upon with some suspicion by the farmers as being too technical and because the experimental farm always has, and employs, facilities in the way of farm machinery, &c., which many farmers cannot afford.

CLASSIFICATION OF LANDS FOR IRRIGATION.

Another matter to which attention should be called, and one which is in much the same line of thought as the preceding paragraphs, is the seeming necessity of making the duty of water elastic in order to suit the classification of the land to be served.

This statement, although made in a very few words, is one that opens up a very large field for argument and investigation, and will require a short explanation, to make the idea clear. The proper duty of water is a quantity, or perhaps more properly a ratio, signifying the relation between the water and the land, and defining the quantity of the former required to produce the maximum of plant growth on the latter. It can be readily understood that for any given locality this quantity must be governed by a number of different factors, of which the primaries are the seasons' climatic conditions, the kind of crop and the kind of soil. The first of these is a variable and can be placed only between the limits between which the climatic conditions are found to vary for the given locality, and the second is almost as variable because any ordinary soil will produce a great variety of crops, but the third—the kind of soil—does not change and can be classified within certain limits as regards the amount of water which it will require. It is impossible, within the limits of this report, to go into the question fully, but attention may be drawn to one clear-cut case

where a classification would be very beneficial. There are certain gumbo clay lands, generally lying along small creek-bottoms, which are highly benefited, in fact changed from a non-productive soil to a good hay-producing soil, by the application of from four to eight inches of water. In fact, this class of soil, on account of its density, will not take up a greater amount of water than this. These lands occur most frequently in sections where the water-supply is very limited, and where very often the supply is not sufficient to put the legal duty of water on them. Therefore, these lands, under the present regulations, must be left absolutely unproductive, and no irrigation rights can be granted because the rule is hard and fast that unless the applicant can show that the water-supply is adequate to serve the land with the legal duty he cannot get a license to divert the water for irrigation purposes. A great benefit would result from a classification which would allow of the use on these lands of a smaller quantity of water than the present legal duty. The one very grave drawback to any system of classification would be the opening given to prospective purchasers of land under the irrigation system to attempt to obtain an improper classification. This, however, would not apply to applicants who already own the land upon which the water is to be applied.

To show that these statements are not without precedent, the following extract is quoted from a report by Mr. Don H. Bark, Engineer in Charge of Irrigation Investi-

gations in Idaho, U.S.A .:-

'The texture of the soil as regards porosity has more to do with the amount of water used than any other one thing. It has been found that adobe soils may be irrigated with the total application of but two or three acre-inches, while in some instances, from one to two acre-feet are required to spread over and thoroughly irrigate an acre of very gravelly soil.'

PROVINCIAL CONTROL OF NATURAL WATER RESOURCES.

In view of the possibility that the Dominion Government may turn over to the provincial governments the administration of their own natural resources, it may be permissible to record here a warning of the great troubles and difficulties that will be met with if the provinces of Alberta and Saskatchewan attempt each to control its own water resources. In dealing with rivers or any question of water conservation it is impossible to draw imaginary lines for administrative purposes. In the United States, which must always be our great object-lesson in these matters which concern the administration of the great natural resources of our virgin territory, it has been found that the greatest obstacle to all the comprehensive schemes of water conservation has been the fact of the separate control by each state of its own waters, and at this late date, after trying every other plan, the consensus of opinion is that the only way in which these matters can be efficiently handled is by the co-operation of the several states. Each province can, if such a policy be adopted, control its own mines, or timber, or lands, but the rivers can be administered, for the development of the maximum of good, only by the Dominion government, which recognizes no boundaries within all its great territory.

NECESSITY FOR INCREASING AND DEVELOPING THE WORK.

The last, but not the least, important point to which attention is here drawn is the great necessity of increasing and developing the work of the irrigation office. The greatest difficulty of to-day is the lack of information which should have been gained in the past, and if the scope of the work of to-day is not very soon greatly increased it will not be possible to keep abreast of the times in supplying that information regarding our great natural water resources which will every day in the future be demanded more strongly by the rapid settlement that is going on at the present day. That this work is not demanded by the public at large is no criterion of its worth,

because the general public does not realize the importance of that work. That body of men who are in the best position to understand the necessities of the case, viz.: the Western Canada Irrigation Association, show a keen appreciation of the need of the work by the resolutions that they have passed at their annual meetings for the past two years. The resolutions which refer particularly to the work of the irrigation office are the following, which were passed at the convention of 1911:—

No. 3. Whereas a knowledge of the practical duty of water for various crops has a most important bearing on irrigation development, and whereas information upon this important question available in any of the provinces of Alberta, Saskatchewan and British Columbia is vague and incomplete,

Therefore, be it resolved that the attention of the governments interested should be directed to this important matter, and that they should be urged to carry out a thorough system of investigation to determine the duty of water in the different provinces and for the different crops, so that such duty may then be determined with approximate exactness.

No. 4. Whereas an accurate knowledge of the location and quantity of water

supply available is the basis of irrigation development, and

Whereas the matter of topographical and hydrographical surveys to determine the location and quantity of such water-supply and the proper methods of conserving it must be undertaken by the government administering the law relat-

ing to the use of such water;

Therefore, be it resolved that this convention urges strongly upon the Dominion Government the importance of making the necessary appropriation and providing the necessary staff to continue in an intelligent and systematic manner the work of gauging all streams of water-supply and location of all sites suitable for reservoirs for the storage of water, initiated a number of years ago.

No. 6. Whereas the conservation of water for irrigation purposes by companies and individuals, as at present carried out, does not admit of the whole available area in each district being brought under cultivation; and whereas the conservation of water by the government would be the means of developing such areas to the fullest extent, and assuring absolute permanency of supply and materially increasing the security to bondholders,

Be it resolved that the governments in which such districts exist be urgently requested to give the matter their serious consideration, and to put such system

into operation at the earliest possible date.

APPRECIATION OF THE WORK OF THE STAFF OF THE IRRIGATION OFFICE.

In concluding this part of the report the Commissioner wishes to express his thanks and appreciation to every member of the staff for their hearty and conscientious co-operation, which alone has made it possible to carry on the successful season's work during the year 1911.

Respectfully submitted,

F. H. PETERS, Commissioner of Irrigation and Chief Engineer.

No. 39.

REPORT OF THE MAPLE CREEK DISTRICT, BY R. J. BURLEY, B.A.Sc., DIVISION ENGINEER.

DEPARTMENT OF THE INTERIOR, IRRIGATION OFFICE. CALGARY, ALBERTA, April 1, 1912.

F. H. Peters, Esq., Commissioner of Irrigation, Calgary, Alta.

SIR,-I have the honour to submit herewith my annual report of the season's

operations in the Maple Creek district.

For the purposes of the work of irrigation inspection, the district was divided into two parts, roughly along the western boundary of range 26, west of the 3rd meridian, Mr. F. T. Fletcher taking the eastern section, extending to range 16, west of the 3rd meridian, and from the international boundary to the north boundary of township 14, while Mr. W. A. Fletcher took the western portion, extending to range 9, west of the 4th meridian, and from the international boundary to township 15.

The levelling party, under Mr. W. H. Greene started from the old government bench mark No. 118 in the town of Maple Creek, established by Mr. Gibbons in 1896, one leveller running westward along the north boundary of township 11 and the other along the north boundary of township 10 until the fourth meridian was reached near the village of Walsh. From this point careful levels were run along the fourth meridian by one leveller and checked by the other, the allowable difference in checks being 0.02 feet by the square root of the distance in miles. This work was done with great care in order to establish a base line of precise levels from which other level lines can be developed in the future with a minimum probability of error.

PARTIES.

The parties consisted of an engineer in charge, an assistant, two rodmen, one teamster and a cook, except in the case of the western inspection party, where Mr. W. A. Fletcher had no assistant and only one rodman. The inspection party in the eastern district was equipped with four tents, one wagon, two democrats and eight horses, together with the necessary cooking utensils, tools, &c., while the one in the western district had three tents, one wagon, one democrat and four horses. The level party had four tents, one wagon, two democrats and six horses, together with the other necessary equipment for six men.

After the parties had been properly outfitted at Maple Creek they separated, and the inspection parties moved as outlined in the reports of Messrs. F. T. and W. A. Fletcher, with the idea of making a circuit of their respective districts in such a way as to be in the vicinity of Maple Creek in the fall when the weather became too severe for further work.

In carrying out the inspection work next season I would recommend that the party in the western district be increased in size to correspond with the one in the eastern district in order to meet the increase in the number of schemes and to properly handle the traverse work which is now being done. In the past this work has been carried on more or less spasmodically, owing to the importance of the inspection

work and to the limited size of the parties in this district, so that there are a large number of schemes sufficiently advanced to permit of traverses being made. In a great many cases it will also be necessary to define accurately the ditch right-of-way and the irrigable area before the license is issued upon the completion of the scheme.

GENERAL CONDITION OF IRRIGATION WORKS.

In watching and considering the progress of small private irrigation schemes for several years, one fact that has been very noticeable is the apparently decreasing rate of progress per year made on a great number of the schemes. In some cases this arises from pure carelessness or inability on the part of the applicant to do the work, but in the greater number of instances it is doubtful if this explanation will apply, more especially where the applicant has used water on some portion of his land and is favourably impressed with the benefits derived therefrom. In the case of the great majority of such ditch-owners in this district it is necessary to make the irrigation scheme pay its own way; that is to say, the owner usually endeavours to complete the intake and the carrying part of the system as soon as possible, in order to get the water on a portion of the irrigable land so that the produce from this part may help to pay the expenses of the remaining work. From this it can be seen that the scheme will, at first, be very imperfect and the results from it proportionally poor. Naturally, the next effort is in the direction of the best results for the least outlay and an effort is made to improve conditions upon the land already watered, so that the tendency is to neglect the main ditches and works and to concentrate the working force upon the land first covered until it has been put in good condition, when another section of the scheme is taken up. As the proper handling of even a comparatively small irrigated tract takes a great deal of time and attention, the second section does not progress so fast as the first, with the result that, in schemes involving several sections, or even quarter sections, the rate of progress on the last portions of the main works appears to be very slow, although in reality more work may actually be put into the scheme per year than was the case at first.

This brings up a somewhat difficult problem for the inspector to decide in making his recommendation for extensions of time for the completion of the works, for there is no doubt that the irrigator who is actually using the water is doing more to develop the country than one who merely finishes the main canal and works so as to pass inspection. As has always been the case in a new country, the development of irrigation is only perfected by experiment and actual use, and the owners can only learn to handle the water intelligently by these means, even where they have had experience in a different part of the world and under different conditions.

From this argument it can be seen that it is very probable that the applicant who is apparently making slow progress will have his scheme in first-class working order long before the man who has rushed his main works, laid out, possibly, without even a preliminary survey, but has made no study of the conditions under which he will have to apply water. In this latter case it frequently happens that the main works are constructed with little regard to the requirements of the land under them, so that the lateral systems are much more extensive and require much more work than the main system, with the result that the applicant is likely to become discouraged before any benefits are actually attained. As soon as the incentive of gaining the water license, or patent for the land purchased, is removed, he will very often allow the scheme to fall into disrepair; on the other hand, the man who completes his scheme in sections and actually irrigates during the time he is working at it obtains such results that he is satisfied to put more time and expense into the works.

As will be noted from the reports of the inspectors, there were some fourteen schemes that passed inspection and were recommended for license last season and,

while this may seem a small number compared to the number of applications on file, generally speaking the progress made was very good, despite the most unfavourable season, if it be judged from the standpoint of the preceding paragraphs. The most noticeable improvement in a great many schemes has been in the adoption of better methods in the application of water and more elaborate distributary systems. The result of this method of working is that, when a scheme is completed, the owner is in a position to get the best results obtainable out of it, owing to the benefit derived from the experimental work done during construction.

On the other hand there are some applicants (comparatively few, fortunately), who appear to do as little as possible each year and who expect to be allowed to continue in this manner indefinitely. The only course open to the department in such cases is to give the irrigator fair notice, and, in the event of the works not being com-

pleted, to cancel the authorization.

IMPROVEMENT OF CONDITIONS.

In considering the improvement and development of irrigation in this district, it would appear advisable for the department to endeavour to direct it along the following lines, viz.:—

(1) Improved Distributary Systems, Revised Grades, &c.

This is probably the first improvement that will occur to the individual owner, as in making it he is acting independently and is getting results in the quickest time, with the least expenditure; also, as the result of personal experience, he sees the defects in the original system and will take a greater interest in rectifying them and in getting the best possible results from his own efforts.

(2) Reservoirs.

In a district where the stream-flow is intermittent, one of the first things to engage a practical irrigator's interest, after he has his own scheme in good working order, is some method of holding up water at flood periods for use during low-water or dry periods. This is a matter which will usually demand co-operation between two or more applicants and, from that fact alone, the development of this phase of the irrigation problem is likely to be delayed for some time. In a few cases it is possible for one owner to provide reservoirs for his own sole use, but in the great majority of cases either the expense is too great or the main ditches are at too low an elevation to fill a reservoir for use on the lands under them. In the latter case it would be necessary to arrange an exchange sysetm, whereby a prior applicant lower down the stream would give up his priority and draw his supply from the reservoir.

In the case of large reservoirs it would usually be necessary for all applicants, who hold lands capable of being irrigated, to combine in order to build the neces-

sary structures and then to apportion the water fairly among them.

(3) Mutual Arrangements for the Division of Water and Construction of Works.

It will be found that when crop rotation is introduced on the lands irrigated the applicants growing different crops will require water at different times and the ideal arrangement is to supply these schemes from reservoirs, charging up the water supplied to them as it is taken, until the total appropriation for each system is exhausted. In cases where no reservoir is available a great improvement can also be effected by one applicant handling the whole available flow until he has thoroughly watered his crop and then turning the stream over to the next man. It also frequently happens that a number of water-users can combine and put in a system which would be out of the question for one or two men, so that in this way a large amount of land could be reclaimed that would otherwise be left in an arid condi-

tion. In many cases, too, the works of one applicant are at a sufficient elevation so that the water from his ditches can be run over the land of another whose works and intake are too low to water it.

As the above arrangements depend wholly upon mutual agreement, it will be seen that this will be one of the last developments to take place in the irrigated districts, but they must be made before the use of water will reach its full efficiency and, as has been the case in older irrigated districts, the consideration of the greatest benefit to all concerned will in time, no doubt, bring about some such state of affairs.

(4) Replacing Temporary Structures with Permanent Ones.

This will probably be the last development to be taken up by the irrigators generally, and such work will not be undertaken until irrigation has made the land of sufficient value to warrant a very considerable expenditure per acre to put the works in a permanently efficient state. A further point in this connection is that of the owner's ability, financially, to erect such structures, and it may be said that the greater number of them must be satisfied with works of a more or less temporary and inefficient nature until such time as they can afford to replace them with good structures.

The points taken up here are merely an expression of opinion regarding the general trend of irrigation development in this country and it is clearly recognized that a good many years must elapse before the improvements outlined will be widely adopted. No doubt there may be many legal complications which it will be the duty of this department to adjust, as far as possible, but, owing to the excellent nature of our Irrigation Act, the field in which such complications can arise is very much restricted in comparison with the older districts in the United States, for example, where the laws were devised to cover difficulties as they arose and where the older appropriators were, only too often, a law unto themselves.

It can be seen that, if the development follows along the course outlined, none of the schemes will be at their greatest efficiency for some years, and this is undoubtedly true so far as the Maple Creek district is concerned. It remains for the department to encourage improvements and, if at all possible, to direct the attention of all the irrigators to improved methods; to encourage co-operation and to commence some campaign of education regarding the best methods to use and the results obtainable from irrigation. This knowledge is bound to come in time, but, unless assistance is given, the process is an exceedingly slow one.

RESERVOIRS.

When natural hay ceases to be the main object of irrigation, the necessity for reservoiring will become very forcibly impressed upon the irrigators in this district, as, while flood-water irrigation is quite suitable for hay lands and is of great assistance in growing grain when it is available at a suitable time, this method of applying water will not be of any great value where intensive farming is practised, nor where alfalfa is grown. As but very few of the schemes have water available at all times, reservoiring is the only solution.

The possibilities for improvement by this means are well illustrated by the success of irrigation in the Cache la Poudre valley, in Colorado, where, at the present time, there are over 200,000 acres in highly improved farms being irrigated from a comparatively small stream with a minimum mean monthly flow of about 70 cubic feet per second and a maximum of about 2,000 cubic feet per second. (Figures taken from Bulletin No. 33, of the State Agricultural College of Colorado.)

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Judging from the rapid development following the installation of reservoir systems there during the early '90's it is only to be expected that irrigation will gain greatly in importance when once such systems are started in this country.

As things stand at present the larger part of the run-off is lost each year, and, as a result, a great many of the schemes have to be satisfied with a scanty water supply, or with one irrigation often available only at a poor season of the year, so that, naturally, the best results are not obtained.

Other points in connection with reservoiring such as the necessity of surveys being made and the construction of large basins by the government, have been taken up in previous reports and need not be dwelt upon here, but, if any dependence is to be placed upon the experience of irrigators in older irrigated districts, it would appear that this is one of the most, if not the most, important question to be dealt with under our Act, and the sooner it is seriously taken up the sooner we may expect the best results from irrigation.

GAUGES IN DITCHES AND STREAMS.

This work was commenced last season and was found somewhat difficult to carry out properly and at the same time to satisfy the ditch-owner as to the correct location for the rod. From the standpoint of obtaining good results for use in this office, it was necessary to place the rod above all laterals and also in such a position that the opening and closing of head-gates or diversion gates would not materially affect the accuracy of the readings. From the standpoint of convenience to the ditch-owner, it was necessary to place the rod as close as possible to his place of residence as, otherwise, it is very doubtful whether the readings could be relied upon. The result of such conflicting conditions was, necessarily, a compromise, and in some instances it is doubtful whether the best cross-sections were obtained. However, under the existing circumstances, the engineer followed what was, in his judgment, the best course. No doubt, as this work is carried on and the irrigators become more familiar with the objects of it, we shall be able to get better results from cross-sections and more reliable readings from the owners.

In all, some twenty-four stations were installed last season and descriptions were forwarded to this office. They were placed on the ditches in use, taking water from the streams upon which there will be the greatest likelihood of dispute in the future, with a view to getting records before any trouble arises in order that the department may be in a position to decide fairly between applicants, should occasion arise. This work will be carried on during the coming season with the same end in view, and it is hoped that stations will be established on all completed ditches by the end of the year.

In addition to the ditch gauge rods, it will become necessary in the near future to establish gauge rods on the streams near the point of intake of each ditch, marked in such a way as to show at what stage the applicant is entitled to take water. This matter has been discussed in previous reports, but it is mentioned here in view of the difficulties continually arising between applicants and in view of the protests made by riparian owners, particularly along Battle ereek.

INSPECTING ENGINEERS' REPORTS.

In the report of Mr. F. T. Fletcher, it will be noted that a start was made last season at placing permanent reference points, or bench marks, at or near the intake of some of the ditches. This work was undertaken with the idea of eventually obtaining profiles of all the ditches, referred to the bench marks, and finally connecting up these to a general contour survey of the country. Such marks are also very necessary in the establishment of gauging stations, and will be connected up with the regular station bench marks as they are put in, while, in the meantime, they give the

inspector a check upon what work has been done in the way of lowering, or raising, the ditch grade-line, dam, head-gates, &c., from year to year. It is proposed to carry on this work in a similar manner during the coming season.

The work of traversing the schemes was somewhat more extensive last season than in previous years, 181½ miles of traverse line being run. The majority of the larger schemes are now traversed, especially in the eastern district, and it is hoped that a large number of the smaller schemes will be done this year. In the majority of cases schemes are not now passed until careful traverses have been made, correcting all errors in the original plans, so that the licenses can be issued for the correct acreage only.

The following summary shows, in tabulated form, the main details of the season's work, in addition to that shown on the reports of Messrs. F. T. and W. A. Fletcher:—

Number of inspections	44
Number of reports submitted	
Number of days of rain or snow, exclusive of Sundays, April	
29 to November 25	58
Number of miles driven	

Respectfully submitted.

RALPH J. BURLEY, Division Engineer.

No. 40.

REPORT ON THE WESTERN SECTION, MAPLE CREEK DISTRICT, BY W. A. FLETCHER, B.A.Sc., INSPECTING ENGINEER,

DEPARTMENT OF THE INTERIOR, IRRIGATION OFFICE.

CALGARY, ALBERTA, February 27, 1912.

F. H. Peters, Esq.,

Commissioner of Irrigation, Calgary, Alta.

Sir,—I have the honour to submit the following report of my work for the Irrigation Branch of the Department of the Interior, in the western section of the Maple Creek district during the season of 1911.

On May 8, I took charge of my party at Maple Creek. A few inspections were made from the large outfitting camp located near the town, and the remainder of the time spent there was consumed in purchasing supplies, breaking horses and completing the outfitting of the party. The actual field work was commenced on May 29, when our first working camp was established at a point some eighteen miles southwest of Maple Creek.

The territory included in the district allotted to me was covered in a manner very similar to that employed in the previous year, although the route followed was somewhat different. Camps were successively established at the most suitable places, having regard to proximity to the work and at the same time to securing good grazing, water and fuel. From each of such camps all work within a ten or fifteen-mile radius was covered, after which the party was moved to another base in a fresh locality. This plan was adhered to throughout the season, with two exceptions. No good camping place was known to me in the neighbourhood of Medicine Hat, and the six

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schemes in that locality were inspected from that town in three days. Seven schemes on Manyberries creek, around Pakowki lake, and on Sevenpersons coulee were inspected by taking one man and a light team on a week's trip from the camp stationed at Eagle Butte. These last mentioned schemes were too widely separated to justify establishing a camp in their neighbourhood and working from the same without considerable loss of time, especially as only inspection work was required.

The remainder of the district was worked from camps established successively at the following ten points: On Downie creek; on Fourmile coulee near Coulee post office; on Sixmile creek at a point about a mile above its mouth; on Battle creek below Wilson's ranch; on Middle creek at Jahn's ranch; on Lodge creek at a point just east of Lynch's ranch; on Lodge creek at W. Mitchell's irrigation scheme; on the irrigation scheme of Jas. English; at Eagle Butte post office, and at Many Island lake.

The total number of inspections made by myself was ninety-three; of this number twenty-three were of licensed schemes, fifty-four of schemes authorized and under construction, and sixteen were new applications. There were, in addition, two applications for permission to extend and enlarge existing schemes.

All of the licensed schemes, with the exception of five, were found in good working condition, and in actual use. The principal crops in evidence were blue-joint hay, oats, potatoes, and some small areas of alfalfa. Although the rainfall was unusually heavy during the season, there was nevertheless some very hot dry weather in the month of June, when those licensees who had water found it advantageous to do some irrigating, more especially on hay lands.

Where grain crops, chiefly oats, are being raised, the almost invariable rule scems to be to have the ground ploughed and worked up during the fall previous and then to give it as thorough a watering as possible with the spring floods. As soon as the soil becomes sufficiently dry, the seed is put in. In many cases snow water from dry coulees is being used to great advantage in this way, both on licensed schemes and on authorized schemes where the works are fairly well advanced. This makes a cheap method of irrigation where topographical features are favourable, and the results are extremely gratifying. In all such cases which came under my notice last year there was sufficient moisture conserved in the seed-bed to have carried the crop through to maturity without aid from the rains of July and August. In fact, these rains were rather a detriment to such irrigated areas, since growth was prolonged in many cases until killed by frost. This would seem to show that one thorough flooding in the spring is sufficient to ensure a fair crop on broken land in any ordinary year, and that applications for water-rights based upon this method should be shown some consideration.

Generally speaking, the larger schemes irrigating two hundred acres and over appear to be the more energetically and profitably operated, although one of the most successful irrigation projects in the district is a small one on Bullshead creek, near Coleridge. From fifty acres of land irrigated on this scheme over \$3,500 worth of green feed, grain, vegetables and garden truck was realized in 1911.

While considerable progress was made on the authorized schemes, much more would have been done had the season been more favourable. Since almost all the works are being constructed by the applicants themselves, and since the regular farm and ranch work must be carried on, a wet season, such as that of last year, not only made the ground too wet for earthwork for a great deal of the season, but also prolonged the haying and harvesting to such an extent that few opportunities were left for ditching when dry spells did occur. However, fair progress towards completing authorized schemes was made. The works on four were completed, passed inspection satisfactorily, and the schemes were recommended for the issuing of licenses. Thirteen others were found to be almost finished but needed some small changes and

improvements and could not be recommended until such were effected. Two of these last were reported as finished late in the season but could not then be inspected on account of bad weather late in November; these are being held over for inspection in the spring of 1912.

Of the eighteen new applications dealt with, nine included the purchase of land, one was for domestic purposes, and eight of the applicants already owned the land to be watered. It is seen, therefore, that considerable faith in the value of irrigation is becoming manifest throughout the district, and that something else besides the acquisition of land is desired.

Complete traverses were made of eight schemes, accurately locating the works and irrigable areas and defining the extent of the latter. Portions of four other schemes were traversed to determine and locate the required right-of-way. In all, sixty-five and one-half miles of traverse lines were run during the season. Traverses for right-of-way on three other schemes could not be made, owing to the works not being sufficiently far advanced to locate the same with any degree of accuracy. Three further traverses of entire schemes which were required could not be made owing to the smallness of the party and the limited time available.

Gauge-rods were installed on all ditches specified in the instructions of the district engineer. Altogether, seven of these were placed. Discharge measurements were taken where it was possible to do so, and discharge curves for the ditch-rods were obtained. These, with descriptions of the stations, were forwarded to the Chief Hydro-

grapher at Calgary.

A small Price electric current-meter and two steel weirs, of crest-widths of 15 inches and 36 inches, respectively, formed part of the party's equipment and stream measurements were made wherever convenient. Not many gaugings were taken, however, owing to the pressure of the regular work of traverse and inspection.

As previously stated, much unfavourable weather was encountered throughout the summer and fall. This caused many delays in the field, not only in the actual inspection and traverse work, but also, owing to the heavy trails, in the transport of the outfit from camp to camp. In a wet season, such as that of 1911, one team proved entirely unable to handle the transport wagon with any proper degree of facility, making extremely slow progress, and, at the same time, being taxed much beyond their working powers. Two teams, one each for a democrat and transport wagon, are not enough for the efficient handling of a party over the rough and broken country included in this district and an extra team would greatly expedite the carrying on of the field work. I would also recommend that a saddle be added to the equipment, as many occasions arise when a saving in both time and horseflesh could be made, in such matters as obtaining and forwarding mail, rounding up loose horses, &c.

All but one inspection had been made, when extreme cold, accompanied by a heavy snowfall, occurred on November 7, and work was held up for nearly ten days. As soon as fair weather returned this last inspection was made, and, after storing part of the outfit at Many Island lake, the remainder was moved to Maple Creek, which town was reached on November 18. The remainder of the equipment was stored there and the party disbanded on November 20.

The following is a list of the most essential features of the season's work:—

Number of inspections made	 93
Reports submitted	
Miles of traverse run	 $65 \cdot 5$
Field plans submitted, including sketch plans	
Number of days with rain or snow, exclusive of Sundays	 63
Miles driven with team and democrat	 2,200

Respectfully submitted,

W. A. FLETCHER,
Inspecting Engineer.

No. 41.

REPIRT ON THE EASTERN SECTION. MAPLE CREEK DISTRICT, BY F. T. FLETCHER, B.A.Sc., INSPECTING ENGINEER.

DEPARTMENT OF THE INTERIOR, IRRIGATION OFFICE,

CALGARY, ALBERTA, March 1, 1912.

F. H. Peters, Esq.,

Commissioner of Irrigation, Calgary, Alberta.

Sir,—I have the honour to submit herewith a report on irrigation inspection work in my district for the year of 1911.

On May 8th, I took charge of my party at Maple Creek, and, after purchasing the necessary supplies and equipment, moved camp to Hay creek, from which point the actual survey and inspection work commenced. The route followed by the camp and the methods employed in the work of inspection and survey were the same as in previous years, viz.: all work was done from a centrally located camp. Camps were established successively at the following locations:—

Hay creek—May 29th.
East branch Bear creek—June 17th.
Skull creek—June 29th.
Pollock's butte—July 31st.
Galienne coulee—August 15th.
North fork Frenchman river—August 26th.
Fairwell creek—September 15th.
Belanger creek—October 4th.
Battle creek—October 13th.
Belanger creek—October 25th.
Maple creek—November 3rd.

On account of extremely cold weather and deep snow the party was disbanded on November 3rd.

HYDROGRAPHIC WORK.

This work consisted chiefly in measuring small streams on which, as yet, there are no regular gauging stations. A few measurements were also taken at regular stations, but, as the stage of stream-flow during the summer months remained fairly constant, no effort was made to make many of these measurements, as such would only be duplicating the regular work of the district hydrographers.

An effort was made to obtain as accurately as possible the value of s (sine of slope) for the larger streams in the vicinity of Maple Creek, the object being to obtain a fairly accurate value of the co-efficient of roughness, n, to be used in calculations involving Kutter's and Chezy's formulæ. The slope s was usually obtained for a chained distance of half-mile above and half-mile below the gauge on the stream, the difference of elevation of the water-level at these points being ascertained. It was thought that by substituting this value in Kutter's formula, and using different discharges and corresponding cross-sectional areas obtained by gaugings of stream

at these stations, a value of n could be obtained. Unfortunately, it was found extremely difficult to obtain a satisfactory value of s, which could be used for this purpose, for the following reasons:—

- (1) The streams are all very small and the low-water channel narrow. At flood stages the water overflows the banks, and, hence, the length of channel is greater at low-water than at high-water, and the value of s therefore changes slightly.
- (2) The value of s changes very rapidly on all of these streams; the fall in the half-mile below the gauge on every stream was found to be much less than in the half-mile above. The value of n found from the above value of s and known values of r (mean radius) and q (discharge) should be, however, much more accurate than an assumed value, and would certainly be a good check on such assumed values.

In addition to stream measurements, several gauging stations were established on ditches. Your instructions regarding the establishment of these stations were followed as closely as circumstances permitted, and hence a description of methods employed and kind of station established is unnecessary. It was found impossible, on account of other work, to establish stations on all the ditches, and gauges were placed on the larger schemes only. In all, seventeen gauge rods were installed and descriptions were forwarded to the Chief Hydrographer.

The instruments used in hydrographic work were a small Price electric current

meter and two weirs, 15 inch and 36 inch crest.

BENCH MARKS.

A commencement was made at the work of establishing bench marks on the different schemes. The elevation of the intake of the ditch was referred to this bench mark and, in many cases, a profile of the ditch was taken with this bench mark as reference. The bench mark established consisted either of a stout wooden peg driven near the intake of the ditch and accurately located, or the highest point of some heavy, immovable rock, and this elevation referred directly to the nearest mound-pin.

INSPECTION WORK AND TRAVERSE.

All work of inspection was done by myself, personally, my assistant helping in necessary survey work in connection with the same. In all, 108 inspections were made and reports forwarded to your office. The office-work connected with this work of inspection is fairly heavy, but, outside of rainy days, when field-work was found impossible, involved my remaining in camp only some ten additional days. This work was greatly handicapped by the bad weather in the latter part of the season, and on this account it was found impossible to make any second inspection of schemes in my district.

Considerable traverse work was done this season. All schemes valued and recommended for license, with one exception, and several other schemes, the location plans of which were found to be very inaccurate, were traversed. One hundred and sixteen miles of traverse were made during the season, including the traverses of creek-courses, lines bounding irrigable areas, and right-of-way traverses. This necessitated the preparation of thirty-six traverse plans, which work was done by my assistant and his rodman. The necessary calculations in connection with the traverses and the drafting occupied him sixteen days, exclusive of rainy weather. In addition to these plans, some ten sketch plans were forwarded to your office.

PROGRESS OF WORK.

During the past season seven schemes were recommended for license. In addition to these, since the close of the season, four schemes have been reported to the office as

complete and ready for final inspection. Considerable progress has been made in the construction of works in the larger schemes in the Cypress Hills and in all cases the work being done is first-class.

APPLICATION OF WATER.

Practically all of the schemes at present authorized and licensed depend almost entirely on flood-water for their supply. On this account the main object in the application of the water is the growing of fodder, either natural grasses, such as blue joint, or cultivated grasses, such as bromus, timothy or rye grass. Experiments by several of the irrigators are showing that it is quite possible to make good use of spring-flood water in promoting the growth of grain. Mr. W. H. Moore, of Gull Lake, whose source of supply is mainly spring-flood water, prepared his land for seeding and then flooded it early in April. The land was seeded as soon as the water applied had soaked away sufficiently to permit of the seed-drills being used. The result in his case fully justified the experiment. The crop grown was spring wheat and oats.

Messrs. Stearns Bros. and C. E. Stearns, on Jones' coulee, applied spring-flood water to a part of their land before seeding, and the land thus irrigated raised the only crop they harvested last year. These and other experiments show that, where the season is very early, as is the case in many parts of the Cypress Hills, spring-flood water can be used to advantage in raising crops of grain, though it should be borne in mind that in the event of the season being late and very wet, the application of this water might

result in souring the land and retarding early growth.

The more successful application of water for growing crops appears to be in the fall of the year. This, of course, is only possible where the schemes are situated on permanent streams in the Cypress Hills, and is especially adapted to this region because the flow of these streams is much greater throughout October than in the summer months. This time for applying the water has been successfully tried by Messrs. Morrison Bros., on the Frenchman river.

To augment their supply of water many of the irrigators are constructing small reservoirs or employing dyking systems, where feasible, to irrigate their hay-meadows. All such efforts should be encouraged in every way, as they prove of value not only to the person constructing such works, but also to other irrigators on the same stream

The following summarizes the work of the season:-

Number of inspections	108
Number of reports submitted	108
Number of days of rain or snow, exclusive of Sundays (May	
8 to November 25)	50
Number of miles traversed	116
Number of field-plans submitted	46
Number of miles driven	2,400
Number of gauging stations established on ditches and descrip-	
tions prepared	17

Respectfully submitted,

FREDERICK T. FLETCHER,

Inspecting Engineer.

No. 42.

CROP REPORT, MAPLE CREEK DISTRICT, BY R. J. BURLEY, B.A.Sc., DIVISION ENGINEER.

Department of the Interior, Irrigation Office.

Calgary, Alberta, April 1, 1912.

F. H. Peters, Esq., Commissioner of Irrigation, Calgary, Alta.

SIR,—I have the honour to submit herewith a report on crop conditions in the Cypress Hills district for the year 1911. In this report much of the information is of a general nature, as it is practically impossible to get details of yield, time of planting and time of irrigation, from the majority of the ranchers, who do the greater part of the irrigation, owing to the fact that they seldom thresh their grain and usually make a rough estimate only of the yield in the case of hay, vegetables, &c.

The considerable differences of elevation throughout this district cause great differences in the climate of the various portions, so that on the Elkwater plateau, with an elevation of about 4,600 feet above sea-level, there is frost practically every month in the year, while along the railway track from Medicine Hat (elevation, 2,171 feet) to Maple Creek (elevation, 2,473 feet) and eastward, there is seldom frost between May 1 and September 10. On the other hand, the higher points appear to have the greater precipitation and the growth of natural grasses is much heavier and longer than is the case on the plains below.

The soil on the top of the Cypress Hills plateau is, as a general rule, a very dark vegetable loam, which usually appears to be underlaid with gravel, gravel and clay, or cemented gravel, while on the slopes of the hills and on the plains almost any class of soil can be found from drifting sand to the heaviest 'gumbo' clay. As a general thing the soil on the north side of the hills is a more or less light, sandy loam, excepting in the creek valleys, where it is usually a heavy clay, apparently in the nature of an alluvial deposit. On the south side, however, a somewhat different state of affairs is found, as the greater part of the soil appears to be a clay loam, somewhat stony in places and, upon the whole, of a poorer quality than that on the north slope. The stream valleys are, in most cases, similar in nature on both sides of the hills.

As practically all the irrigation is confined within the limits of the valleys, it will be seen that from the standpoint of irrigated crops it is necessary to deal with a very heavy, sticky, class of land, having an impervious subsoil and more or less poor drainage facilities in the majority of cases. Naturally there are some notable exceptions to this rule and these will be dealt with later on in this report, but in the case of the majority of schemes the land, before water is applied, is baked very hard, has very little grass, but a more or less heavy growth of sage and greasewood. When water is applied, however, the sage is killed and the natural blue-joint grass springs up thickly, forming excellent hay-meadows within two or three years. On the north side of the hills, principally north of the Canadian Pacific Railway line, there are between twelve and fifteen thousand acres of this class of land under irrigation for natural hay each year, and, as a general rule, fairly good results are being obtained, the yield being between one and one and a half tons per acre. This yield could undoubtedly be increased if better methods were adopted, as at present

the owners, holding, as they do, large tracts of land, are quite satisfied to turn on the water when it is available, and to cut whatever crop there is when it is ready. There are many features of this class of irrigation that could be greatly improved, as, for example, the dyking of the flats to hold water for a longer period. Another cause of trouble in such hay-meadows is the thickening of the grass roots under irrigation until they finally choke each other out and stunt the growth, thus cutting down the yield very materially. This can be overcome to a great extent -y discing the sod from time to time, thus giving a better and looser root-bed. The condition occasionally met with on the south side of the hills, but seldom seen on the north side, is that of a heavy growth of 'fox-tail' grass, choking out the blue-joint and rendering the meadow useless. This appears to be encouraged by the application of too much water and by allowing water to stand on the land for long periods. Possibly the standing water kills the good grass, giving the other a chance to grow, but, in any event, it renders the meadow practically useless, and the only remedy appears to be leaving the land dry for several seasons or ploughing the sod under.

On the plateaux or on the higher slopes of the hills the great trouble is with early frosts. However, it may be said that oats and barley usually ripen, but wheat is frequently damaged. Timothy can be grown successfully, and Mr. Jacob Armstrong, near the head of Fairwell creek, is making a success of rather a novel experiment. Three years ago he started discing timothy seed into the prairie sod and this grass is now growing very well. He expects to be able to turn a large area of prairie land into timothy in this way, without going to the expense of breaking it, and it would appear that his expectations will be realized, judging from the showing made last year. He is also experimenting with alfalfa, but as yet has got but little past the experimental stage, although very successful up to the present.

Practically all the common varieties of vegetables are grown with fair success, but during some seasons the less hardy varieties are a failure on account of frost. If this difficulty is overcome, as more land becomes broken, there is no reason why these crops should not be very successful. So far, practically all the vegetables grown are for the owner's use only, and there are very few areas of any size under such crops. On account of the elevation the nights are much colder on the plateaux, so that all crops are considerably later than is the case on the lower land.

CROPS GROWN UNDER IRRIGATION.

While the staple crop on the greater part of the irrigated land in the district is natural hay, it has been demonstrated that timothy, rye grass, redtop, bromus, clover and alfalfa can be grown successfully under irrigation if properly handled. Up to the present the crop of native blue-joint has almost satisfied all demands, and it will always command a good price per ton on account of its excellent quality, so that the owners have been satisfied with a low yield per acre rather than to go to the expense of breaking, preparing and seeding the land to some other crop. No doubt, in the future, as the supply of bench hay runs out and the demand becomes greater, owners of irrigated flats will realize that they are losing money by keeping their flats seeded down to a low-yielding crop and will begin to do some additional work to obtain a better one.

With regard to grain crops it may be said that practically all the cereals are grown to some extent, but oats appear to be the favourite under irrigation, no doubt because the grain is almost all fed on the ranch. These crops appear to yield best when irrigated about the middle of June and a second time about July the 16th to 25th, unless weather conditions interfere; but, in most cases, water is not available at these times, so that some other method must be adopted. Very good success is obtained by a thorough irrigation late in the fall, with a careful working of the land early the next spring before the seed is put in, so that the moisture is conserved. Others have

obtained good results by watering thoroughly in the early spring during the period of spring run-off, and then getting their machinery on the land as soon as it is sufficiently dry on top to put in the seed.

Although last season was extremely wet for this district the benefits derived from irrigation were well illustrated by the results obtained by Mr. W. B. Freel on the Frenchman river. He had put in some twenty acres of oats and had commenced watering them when a very heavy rain caused considerable damage to a large cut near the head of his ditch, making further irrigation an impossibility until too late in the season to be of any value. He had, however, thoroughly watered some six acres and at the time of inspection on August 30, the difference between this area and the rest of the crop was most marked. The irrigated grain was very heavy and stood almost six feet in height, while the rest of it was light and about four and a half feet high. Mr. Freel estimated the yield of the two parts at seventy-five and thirty bushels per acre, respectively.

Owing to the fact that the market is very limited, little has been done towards growing vegetables and small fruits, excepting in small patches for the owner's private use, although it has been demonstrated that almost any variety of these may be grown successfully under irrigation at the lower elevations. Mr. H. H. Fauquier, on Hay creek, went into this business quite extensively some years ago, and, in addition to the more common vegetables and fruits, succeeded in growing and ripening watermelons, canteloupes, corn, tomatoes, cucumbers, plums, &c. This shows what can be done by intelligent handling of the land and proves that, so far as climate and soil are concerned, practically all vegetables and small fruits can be grown if water is a sailable and some care is exercised in cultivation. The land in this case is a sandy loam of good quality and was always carefully worked. On the south side of the hills, near the international boundary, Mr. V. W. Heydlauff has practically duplicated these results, although on a smaller scale, despite the fact that his scheme is a new one and is still unfinished. At the western end of the district, near Dunmore, Mr. Francis Wright last year took a crop valued at \$3,500 gross, from an area of fifty-one acre-, as mentioned in Mr. W. A. Fletcher's report, and I append hereto a detailed list showing the nature and quantity of the different crops grown by him. Where proper care and attention are given, these yields are not extraordinory. Mr. Fauquier met with equal and sometimes greater success in some crops when he was in the business, while many others scattered through the hills, working on a much smaller scale, have obtained equally good results.

From the above it can be seen that there is a very good field for truck gardening here, and, owing to the prevailing high prices for such produce in the west, such work should prove extremely profitable to the producer when he is so situated as to have easy access to a market.

METHODS OF IRRIGATION USED AND SUCCESS OBTAINED.

In practically all cases where hay is the object of irrigation the water is applied by the method of wild flooding; that is, water is turned out of the stream during high periods and by means of a few directing ditches is made to cover the land to a depth of from three to six inches, flowing slowly over it and back into a natural water-course or to the creek channel itself. Naturally, this method is extremely wasteful of water and is not by any means the most efficient way of covering the land, although it is by far the cheapest and takes the least work. Its wide adoption, no doubt, arises partially from these causes and partially from the fact that the flood periods are usually of too short duration to permit of the water being carried over the land properly by a system of laterals, checks or any other means than by dykes, unless reservoirs are provided.

A system that is an improvement on the above method, and which is being used to a greater degree lately, is that of dykes. This method is identical with the check system, excepting that the dykes are higher than those used on cultivated lands and the water is held to a depth of from one to three feet over the land under the first dyke for a short period-occasionally as long as two weeks-and is then released by means of waste-gates and allowed to flow into the next lower dyke and so on until the whole area has been covered. This method has the advantage of soaking the land more thoroughly and of acting to some extent as a reservoir system, while the waste of water is not nearly so great. The dykes are most successful when constructed on contours at intervals of from one to three feet in vertical height and should be built with long, easy slopes and rounded tops, so that they will allow easy passage of agricultural machinery over them. The systems so far installed are proving very satisfactory and very good results are being obtained from them in the growth of hay. Their value for the irrigation of grain and other crops is doubtful and, although I have never seen the experiment tried. I believe it would prove a failure unless the dykes were very low and comparatively close together.

Lateral systems, as used for hay production, are usually of a very primitive nature and in almost all cases combine with the wild flooding system to produce the desired results. Messrs. Enright and Strong's works probably show the greatest development of any large scheme and they use a system of laterals, dykes and wild flooding over their hay lands, with very good results, as they also have drainage canals cut from the lower portions of the meadows to the river. Last season they were able to cut between eighty and ninety tons of timothy and clover from some thirty-five acres of land which was watered with laterals, but their meadows of natural grass did not produce over one ton per acre. For grain they use laterals several hundred feet apart and flood the land between them, obtaining very good results. The grain was in excellent condition during the latter part of August last and all indications were for a heavy yield. For potatoes and vegetables water is applied by running small streams down the furrows between the rows, and this method has been found very successful.

In the majority of cases of those growing grain, a somewhat similar method to that used by Messrs. Enright and Strong is employed, with results varying according to the efficiency of the system and the experience of those using the water. The check and furrow systems, excepting as noted in connection with dykes, are practically unused to any large extent, probably on account of the expense involved in levelling and preparing the land. Of course, in the case of gardens where the land is bearing a valuable crop, requiring a great deal of tilling, the furrow method is used altogether, but these cases are seldom met with on any considerable scale at present.

FLOOD WATER IRRIGATION AND DUTY OF WATER.

Probably the most striking feature of irrigation throughout the Cypress Hills is the large number of schemes depending wholly upon flood water for their supply, also the success which has been attained by this class of schemes. In the case of almost all the streams in this district the water-supply a few miles below the head-waters is of this nature to a greater or less extent, so that, until reservoir systems are installed, it will be necessary for owners to make the best of what they have and to try for the best paying crops that can be successfully grown with the facilities at hand. At present ninety-five per cent or more of such land is used as hay-meadow, and it would appear that such use gives better net returns per acre than grain when the work necessary for the latter is taken into account.

When these heavy valley-lands, composed of what is known in this country as 'gumbo,' but resembling the 'adobe' of New Mexico and the South, are in their natural condition, little' or no vegetation is found upon them and, by noting the condition of pools of water left on them after rains. it can be seen that the soil is

extremely impervious, so much so that the greater part of the water evaporates, moisture extending into the soil only a few inches. Under irrigation, therefore, it is impossible for such land to absorb the amount of water required by the legal duty of water, and from several years' observations I very much doubt whether more than from three to six acre-inches of water are actually taken in by this land during a season's thorough irrigation. This amount may appear very small, but it should be noted that such land is always moist a few inches below the surface, so that it would appear as though it were as good at retaining moisture as it is in resisting the absorption of it. Good results are almost invariable on this class of soil where only flood-water is available and where only a fraction of the legal duty of water can be applied, but, on the other hand, there are a few cases where water is always available, and such areas have been badly damaged by the rising of alkali and the growth of foxtail grass, through no other apparent cause than the application of too much water.

There are many instances of streams along which the only irrigable land is of this heavy nature and there can be no doubt that the application of the full quantity of water called for by the legal duty of water would, in a short time, absolutely ruin the meadows and render them unfit even for pastures, unless a very elaborate system of tile underdraining were installed and the soil rendered much lighter by manuring or other means. As matters stand at present it is practically impossible for any such amount of water to be applied, as it merely runs over the ground and back into the channel with a comparatively small amount entering the soil. In the case of sandy lands or loam having a gravelly subsoil, water is absorbed quickly and carried off quickly, so that the arbitrary duty of water may be a very fair quantity in these cases, but in the heavy lands it is probable that the application of so much moisture would result in damage rather than benefit.

This brings up a point of interest in regard to some of the creek valleys, where the water-supply is all granted according to the present basis, but where there are still large acreages which could easily be irrigated if water were obtainable. These lands are of little or no value without water, while under irrigation they become highly profitable as hay-meadows. The adjoining lands under water licenses have a right to use more water than they can put to beneficial use, with the result that the return flow from their lands regains the creek channel below and is lost. The question naturally arises, why not divert this overflow water on to lands adjoining, and from them on to others, until it is exhausted. The reason is, of course, that the Department has already granted rights up to the full capacity of the stream and cannot grant further rights to something which is not there. It is possible that future investigation will prove conclusively that irrigation schemes on this class of land cannot use the quantity of water to which they are now entitled and thus render a portion of their license subject to cancellation for non-use, which would involve a readjustment of rights on the whole stream.

In conclusion, it may be said that while irrigation farming in Canada is still in the experimental stage, enough has been done to demonstrate that success is practically certain in diversified farming and that almost all field crops, vegetables and small fruits can be brought to perfection in this district. The trouble has been, and still is, that the irrigator is satisfied with a comparatively small return per acre from a large area so long as the work and expense involved are trifling, and, as a majority of irrigators are ranchers, the growth of winter feed has been the great desideratum. When the irrigated tracts become broken up-into smaller holdings and really careful farming is practised, there is every reason to hope that the success of irrigation will be as great as in the older districts in the United States. Within a few years it is probable that alfalfa, clover and timothy will enter largely into the

production of hay and that, as a result of crop rotation and scientific farming, the land will become richer rather than poorer from the uses to which it is put, in addition to returning larger profits to the owners.

Respectfully submitted,

RALPH J. BURLEY, Division Engineer.

APPENDIX TO CROP REPORT OF R. J. BURLEY.

(Products from irrigated land, 51 aeres-N.W. \(\frac{1}{4}\) Sec. 34, Tp. 11, Rg. 5, W. 4th Meridian.)

Irrigation scheme of Francis Wright.

Product.	No. Acres.	Yield.
Wheat Oats. Peas Potatoes Mangels Carrots Turnips Beets Onions Parsnips Tomatoes Cabbages Corn (green) Oats and Rye	5 1½ 18 2 1 1 1 1 1 1 4	371 bush. 353 " 360 " 3,000 " 400 " 600 " 200 " 200 " 200 " 10,000 heads. 2 tons.

SESSIONAL PAPER No. 25

SCHEDULE OF BENCH MARKS ESTABLISHED IN MAPLE CREEK DISTRICT DURING SEASON OF 1911.

Location.	Elevation.	Remarks.
Location. On N.W. corner of Dixon Bros., store at Maple Creek At N.E. corner Tp. 11, R. 27, W. 3rd Mer. At N.E. " " R. 28, " At N.E. " " R. 30, " At N.E. " " R. 1, 4th At N.E. " Tp. 10, R. 27, 3rd At N.E. " Tp. 11, R. 27, " At N.E. " Tp. 10, R. 27, 3rd At N.E. " Tp. 10, R. 28, " At N.E. " Tp. 11, R. 28, " At N.E. " Tp. 10, R. 29, " At N.E. " Tp. 10, R. 29, " At N.E. " Tp. 10, R. 30, " At N.E. " Tp. 10, R. 30, " At N.E. " Tp. 10, R. 1, 4th At N.E. " Tp. 10, R. 1, 4th At N.E. " Tp. 10, R. 1, 4th At N.E. " Tp. 8, R. 1, " At N.E. " Tp. 8, R. 1, " At N.E. " Tp. 8, R. 1, " At N.E. " 34, Tp. 7, R. 29, 3rd At N.E. " 34, Tp. 7, R. 29, " At N.E. " 34, Tp. 7, R. 29, " At N.E. " 37, Tp. 6, R. 29, " At N.E. " 37, Tp. 6, R. 29, " At N.E. " 37, Tp. 6, R. 29, " At N.E. " 37, Tp. 6, R. 29, " At N.E. " 37, Tp. 6, R. 29, " At N.E. " 37, Tp. 6, R. 29, " At N.E. " 37, Tp. 6, R. 29, " At N.E. " 37, Tp. 6, R. 29, " At N.E. " 37, Tp. 6, R. 29, "	Feet above sea-level. 2472 800 2513 555 2520 815 2623 173 2393 290 2410 072 2576 981	Remarks. Dom. Gov. B. M. No. 118. I. P. Tempy. Gov. B. M. "" Permanent " Temporary Gov. B. M. (6 ft. N.W. of mound). Tempy. Gov. B.M. Top of Tp. post. " I. P. Tempy. Gov. B. M. (in W. pit at mound.) "" Top of Tp. post. "" "" Top of Tp. post. "" "" Tempy. "" Permanent Gov. B. M.
At N.E. "Tp. 5, R. 30, " At N.E. "Tp. 5, R. 1, 4th At N.E. sec. 24, Tp. 5, R. 1, "	3472·356 3580·588 3445·481	Top of Tp. post. Permanent Gov. B. M.
On south bank of Maple creek at east boundary of Sec. 16, Tp. 11, R. 26, W. 3rd M	2465 · 335	п

The datum of the elevations listed above has been carried from the elevation of the Dominion Government bench mark number 118 on the northwest corner of Dixon Bros. store at Maple Creek, which has an assumed elevation of 2,472.800. In order to get the datum of Canadian Pacific Railway levels at Maple Creek it is required to apply a correction of plus 0.945 feet. The levels were all checked by two independent circuits and in reducing were corrected for curvature and refraction. In reducing the levels the differences between the two circuits were equally divided and in reducing the elevation of any bench mark set on one circuit the correction to the elevation was made in the ratio of the distance from the last bench mark set with a reduced elevation.

No. 43.

REPORT ON THE CALGARY DISTRICT BY J. C. MILLIGAN, C.E., INSPECTING ENGINEER.

DEPARTMENT OF THE INTERIOR, IRRIGATION OFFICE.
CALGARY, ALBERTA, March 11, 1912.

F. H. Peters, Esq., Commissioner of Irrigation, Calgary, Alta.

SIR,—I have the honour to submit herewith my report of the work done by the party under my charge in the Calgary district, Alberta, on irrigation surveys, during the season of 1911.

LIMITS OF DISTRICT AND HOW TERRITORY IS COVERED.

The district mapped out for inspection by myself and party during the summer of 1911 is bounded on the north by the north boundary of township 24; on the west by the first range of the Rocky Mountains; on the south by the south boundary of township 3; and on the east by the Calgary and Edmonton railway, the Peigan Indian reserve, and the east boundary of range 29, west of the fourth meridian.

The territory was covered with the aid of a light camping outfit, and camps were located within convenient driving distance of a group of irrigation schemes, so that the largest possible number of schemes could be inspected from each camp.

GENERAL CONDITIONS OF IRRIGATION WORKS IN THE DISTRICT.

The Calgary district can be divided into two distinct parts, viz.: the general farming or prairie country, and the ranching, or foothills, country.

The general farming, or prairie, country is within a semi-humid area, where the rainfall is generally sufficient to ensure a good crop. All the irrigation works should, therefore, have been designed for intermittent work, which means the storing of water to ensure a good supply during droughts. This matter has never been taken into account, and the result has been that in droughts, when water was particularly required, none was obtainable, as out on the prairie all the streams had run dry. This has had a very discouraging effect on the farmers, who consider that water, to be of any value to them, should be available during droughts. If water were available, irrigation could then be used successfully and be, what it should be in this part of the country, an insurance against crop failure. As a result of these occasional droughts, irrigation is now considered not worth the trouble and most of the schemes on the prairie section have been allowed to go to ruin and in a great many cases licenses have been abandoned.

In the foothills, or ranching country, where irrigation is used exclusively for hay and green-feed crops, the same conditions have not existed; consequently the irrigation schemes, although not in first-class order, are used to a large extent, and some interest is taken in them. Range is now very limited in extent, and within the last year almost every rancher has been compelled to erect fences to protect his land from being overrun by his neighbours' stock; consequently he is now placed in the position of having to grow as much hay as possible on the limited area of land at his disposal.

It is in this district that irrigation is beneficial in all years, as hay crops can stand continual irrigation up to the cutting season, without fear of detriment. The ranchers are, therefore, realizing the benefits of irrigation, and in the future it will probably play an important part in farming in the foothills: works will be kept in order, and good results will be obtained.

EXTENT AND CHARACTER OF IRRIGATION DONE.

During the season of 1911, sufficient moisture fell in the Calgary district to ensure a good plant growth; very little irrigation was therefore used, and there was little or no opportunity of judging what actual irrigation does take place. The general method of irrigation adopted is flooding by means of contour ditches, which is the only suitable method for this part of the country, as the nature of the irrigated land is rolling. The only conclusion to be arrived at, from an examination of the schemes in the prairie district, is that little or no irrigation has taken place for several years. The works are generally in poor condition and in a great many instances the ditches are practically destroyed. This condition applies to the irrigation schemes having their sources of supply in small creeks with uncertain flow. Irrigation schemes, having their source of supply in the larger streams with more certain flow, are generally in better condition but, on account of the climatic conditions in 1911, very little irrigation was done.

In the foothills district a fair amount of irrigation took place. The method used was flooding by means of contour ditches in the spring and early summer. Irrigation was also used in the fall and it should be possible to collect some data of results during the coming summer. In this district irrigation was not practised in a thorough manner, with the result that hay crops were very patchy, showing that no system had been observed in the distribution of water. In the prairie district eight irrigation systems were in use, four to irrigate hay-meadows and four to irrigate general garden truck; in the foothills district twenty-four systems were in use irrigating hay-meadows.

SUGGESTIONS FOR BETTERMENT OF CONDITIONS.

In the past it has been the practice to grant licenses for irrigation schemes at high and flood stages of streams. It is suggested that this be discontinued, unless under certain circumstances, that is, along with storage reservoirs, or where only hay is to be irrigated. For a period of some thirty days between June 15 and July 15, and for a short time in the fall after the harvest has been taken off, water can be beneficially applied to land for general crops. At these times there is practically no high water or flood in any of the streams; therefore licenses which are granted on this basis are of no value without storage capacity. Of course, the licensee may use water with regard to the priority of his license, but in years when irrigation is required all the available water is used by the licensees holding rights at low-water stage. As a great many of the streams in the prairie district go completely dry during some years, it is suggested that these streams be tabulated, and that no licenses be issued unless storage capacity is also provided, or unless hay only is to be grown.

There is another remedy for this matter, but it may hardly be considered feasible at present owing to its great cost. If storage reservoirs were built at convenient points in the mountains or foothills the difficulties of a permanent water-supply would be eliminated. These reservoirs could be built at the expense of the government, and a pro rata sum charged to each licensee on each particular creek, the rate being so fixed that the cost of the work and its upkeep would be repaid to the government within a fixed period.

PERSONNEL AND EQUIPMENT OF PARTY.

The party consisted of one engineer in charge, with rodman, teamster, and cook, and was equipped with a light camping outfit, which included two teams and two democrats, with a saddle-horse. The instrumental equipment of the party was as follows:—

One set draughting instruments.

One dumpy level (Gurley with compass).

One mountain transit (Gurley).

One small Price electric meter.

One stop-watch.

One 12-inch weir.

One 15-inch weir.

The work consisted of inspecting irrigation schemes, both licensed and authorized; surveying and setting out new schemes; reporting on the feasibility of proposed irrigation schemes; helping licensees of irrigation schemes, both with advice and by designing new structures; gauging streams and irrigation canals; placing gauge rods in irrigation canals, and making final measurements of work done on completed schemes.

On account of a late start and my lack of familiarity with the district, I found it impossible to make a complete survey of all the schemes in the district. The tour of inspection was begun on May 28 and, in all, twenty-five camps were made. Work was carried on during the months of June, July, August, September and October, but had to be abandoned on November 11 on account of deep snow and low temperature. Work was again started in December, but for the same reason it had soon to be abandoned.

SUMMARY OF WORK.

Number of inspections made during season 1911 11 Gaugings of creeks and irrigation ditches taken	1 57
Final measurements of work done	2
Gauge rods placed in irrigation canals	9
Inspections of waterworks made	2
Lateral systems laid out	2
Drainage systems laid out	2
	.3
	19.5
	.6
Distance travelled with team and wagon 2,25	4 miles.
	5
Number of working days on inspection work	1
	$9\frac{1}{2}$
	4

Respectfully submitted,

J. C. MILLIGAN, Inspecting Engineer.

No. 44.

CROP REPORT, CALGARY DISTRICT, BY J. C. MILLIGAN, C.E., INSPECTING ENGINEER.

DEPARTMENT OF THE INTERIOR,
IRRIGATION OFFICE,
CALGARY, ALBERTA, March 11, 1912.

F. H. PETERS, Esq.,

Commissioner of Irrigation,
Department of the Interior,
Calgary, Alta.

Sir,—I have the honour to submit herewith my crop report for the Calgary district for the season of 1911.

This district is bounded on the north by the north boundary of Township 24; on the south by the International boundary between Canada and the United States; on the west by the 1st Range of the Rocky mountains, and on the east by the Calgary and Edmonton railway and the Blood Indian reserve.

The district consists of two sections: prairie or general farming lands, and foothills or ranching lands. It is difficult to define a boundary between these two sections, as the ranching country is only being opened up and it is claimed that some ranching land, so designated a short time ago, is in reality good farming land. This may or may not be the case, and only time can show. It is certain, however, that throughout a large part of the foothills very severe frosts take place at nights, even as early as July, sometimes severe enough to freeze water to a thickness of over half an inch.

Only a small portion of this district is devoted to general farming and this part lies adjacent to the railway line. It is comparatively low-lying and flat, and is outside the frost belt, which lies along and among the foothills. This part of the country comprises probably the best wheat land in Alberta. It is an old settled district and is well populated. Wheat is the main crop, but all crops common to the Canadian West are grown here successfully. In the Pincher Creek and Cowley districts winter wheat is the principal crop and large yields are produced.

It is claimed that winter-killing of wheat is practically unknown here, and that a good crop is assured every year. The partial crop failure in 1911, cannot be attributed to winter-killing, as patchiness was remarkable for its absence, and crops seemed

to be in splendid condition at the time of inspection.

In the foothills, or ranching country, which includes all the country lying west of a line nine to twelve miles west of the Calgary and Edmonton railway, and consists of the hills and valleys adjoining the Rocky mountains, ranching is carried on. Although the range is becoming more crowded year by year, there is still a large ranching business done. The only crops grown here are for local feed, and consist of green oats, timothy hay, bromus and irrigated wild prairie hay. All these crops grow luxuriantly in this district, and with the aid of irrigation, which is used in a great number of cases, timothy occasionally yields three tons to the acre. Timothy is the main crop, and it is usually sown with a nurse crop of oats, which is cut as green feed the first year.

In a great many places in the valleys of the foothills timothy now grows wild, especially on the low-lying parts along stream beds. Bromus is only grown to a very limited extent, and a good crop is always assured. Clovers seem generally to kill out

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the first or second year. Alfalfa, or lucerne, is seldom grown, as very little success has been achieved with it. This probably is due to improper methods of cultivation, rather than to the climate.

A great many trials have been made to grow it, but, so far, with very little success, as winter-killing seems to be the rule during the first winter. The experience of Mr. George Lane on his Willow Creek ranch (Sec. 5, Tp. 14, Rg. 29 west of the 4th meridian) is, however, an exception to the rule, and goes to show that, if reasonable attention and care are given to its cultivation, alfalfa can be grown successfully. At present Mr. Lane has 250 acres in alfalfa, 100 acres of which has been yielding crops for a number of years. No winter-killing has been observed, and no inoculation has been used either on the land or with the seed. The method of cultivation employed was as follows: land was selected that had been cropped for some time; it was then ploughed deeply, disced thoroughly, dragged and levelled; seed was then sown one inch deep and no more, and land was corrugated twenty inches apart for irrigation. About the first of June the seed was sown, care being taken that regular seeding took place. Water was not applied before the fall, and the first year's crop was cut, leaving a long stubble. After the first year the crop was irrigated either twice or thrice, according to the amount of moisture in the soil. The usual time that water was applied was after the first cutting at the end of June, and once in August after the second cutting. If, however, the fall proved to be very dry, another irrigation was given in September. Two cuttings of the crop were made and from two and one half to three tons per acre were harvested.

Some of the farmers sowed alfalfa during the spring of 1911, and in one case, that of Mr. Quail, of Claresholm, in Sec. 36, Tp. 11. Rg. 28 west of the 4th meridian, a good crop was taken off. This crop was grown on some twenty acres of land that had been previously seeded to winter wheat, but, owing to a bad winter-killing, it was reseeded to alfalfa. Some information should be secured regarding the condition of this crop during the season of 1912.

Respectfully submitted.

J. C. MILLIGAN,
Inspecting Engineer.

No. 45.

REPORT OF SPECIAL INSPECTIONS BY P. J. JENNINGS, C.E., SPECIAL INSPECTING ENGINEER.

DEPARTMENT OF THE INTERIOR, IRRIGATION OFFICE.

CALGARY, ALBERTA, March 4, 1912.

F. H. Peters, Esq., Commissioner of Irrigation. Calgary, Alta.

Sir,—I have the honour to submit the following report upon the work done during the season of 1911, on 'Special Inspections.'

This work was taken over by me on the 17th of May, 1911. After spending some five days in the Calgary office upon the perusal of files and the collection of the necessary plans, &c., I started out on the first tour of inspection on May 21. Owing to the early freeze-up and the extreme cold weather it was not possible to continue this work, economically, after November 28, 1911.

AREA OF TERRITORY COVERED.

The inspections made during the season covered a territory extending from the International boundary on the south to a point as far north as township 67, as far as Crowsnest Pass to the west, and to the east as far as range 14, west of the 2nd meridian. The area within the scope of 'Special Inspection' work includes the provinces of Alberta and Saskatchewan, which together have a total area of some 504,190 square miles. It will be readily understood that in order to reach the many widely scattered schemes throughout this great area long train journeys and equally long drives, often through very sparsely settled country, had to be accomplished.

CLASS OF INSPECTIONS.

The inspections, which were varied in character, covered a wide field of engineering and included small pumping schemes for railway water-tanks, coal mines, etc., larger pumping schemes for municipal waterworks and irrigation, gravity systems of water-supply for both municipal and irrigation purposes, and drainage works for the reclamation of marsh lands. The pumping schemes included the use of a great variety of pumps and a still greater variety of motive power for driving them.

Inspections to determine the feasibility of proposed schemes often required very careful investigation and the acquisition of much local information, the quantity of water available being, in most cases, the most difficult point to decide in order that

other interests might be protected.

The explanation and interpretation of the Irrigation Act in regard to the ownership, on private lands, of waters required for various purposes, was a matter that had to be repeatedly explained. The general ignorance of the existence of the Irrigation Act and its application was noted in many instances, more especially in Saskatchewan than in Alberta.

PROTESTS.

A good deal of time was taken up in enquiring into schemes where protests had been filed. It was, however, usually found that the basis of a protest was due to lack of knowledge regarding the limitations of the privileges sought by the applicant. In other cases it could be traced to jealousy or to old outstanding grievances which had no bearing whatever on the case.

The applications for water at high and flood stages from streams of short-lived, or small, summer flow, are usually the ones where most protests are met with. Misunderstanding usually arises from the fact that little, if any, attention has been given to the most important feature of the applicant's published notice, where the stage of the stream at which water may be diverted is set forth. When this is properly exam-

ined the protests are usually withdrawn.

Protests were met with, in some cases, from settlers living from twelve to fifteen miles below the point of the proposed diversion. These protests are usually for loss and damage through the assumed loss of a regular supply of water for domestic use due to the works above them. Where little, if any, information exists regarding the flow of small, fluctuating streams, such as exist on the prairies, many difficulties arise in the settlement of these disputes. It has, therefore, often been necessary to spend considerable time upon investigations, which would otherwise not have been necessary, in order to ensure the passage of sufficient water for the domestic needs of the settlers below during the periods in which it has been ascertained that they are entitled to it. These periods can only be defined when has been ascertained by experiment the stage of the stream at which the losses in transit, etc., between the two points in question exceed the flow. Until this information is procured it is impossible to outline a settlement equitable to both sides.

DRAINAGE.

Drainage for the reclamation of swamp and submerged lands has also had some attention in this year's (1911) inspection work. The difficulty found with this work was the lack of facilities to take soundings in order to check the correctness of the plans submitted and to determine the feasibility of the scheme. In cases where drainage work had already been undertaken, some excellent hay lands had been reclaimed. As a general rule, these schemes are very beneficial to the surrounding country and are usually welcomed by the settlers. The chief feature of this work has been the investigation of protests against the granting of the application. In some cases these protests have been well founded and the applications have been disapproved, while in others there has not been found sufficient ground for protest.

DIFFICULTIES ATTRIBUTABLE TO WIDELY SCATTERED INSPECTION.

There are many difficulties which occur on this work through the schemes being so widely scattered which add greatly to the cost of each inspection, but, at the same time, are unavoidable. In the first place it would not be economical to take a competent assistant out on this work owing to the unavoidable loss of time in getting from one place to another and the consequent high cost of transportation. The result is that wherever a survey, a line of levels or an important stream gauging is required, it is necessary to employ inexperienced helpers. This not only impedes progress until the helpers have become familiar with the work, but there are also constant worry and danger of incorrect work.

SCHEMES INSPECTED, COST, &C.

The number of schemes inspected and reported upon during the season amounted to 78; of these schemes 39 were in connection with irrigation, 23 for industrial purposes, eleven for municipal and domestic purposes, four for drainage, and one special inspection. In connection with these 78 schemes, seven amended plans were prepared, one scheme was surveyed and complete plans made for the works, and three explanatory plans were made to accompany reports. In order to earry out this work it was necessary to travel over four different railway systems, the total rail-mileage amounting to 5,340 miles. To reach the many outside inspections it was necessary to travel 1,909 miles with team and wagon.

The total expenditure on this work for the season, including my own salary, amounted to \$1,827.88 for the 78 inspections made, or at the rate of \$23.43 per inspection. When it is considered that for each inspection made it was necessary to travel, on an average, 93 miles, and that to the cost of this must be added other incidentals, such as board and accommodation, team and man-hire and a proportion of the time lost through bad weather, the cost does not appear excessive.

The number of days lost on account of bad weather was 14; lost in travelling, approximately, 60; Sundays, 28; making a total of 102 days. The total number of days available, including Sundays, was 192; thus 90 days were left for 78 inspections, or at the rate of 1.1 days per inspection. For the whole season this would work out at the rate of 1 inspection for 2.3 days.

On account of the large number of inspections that are already on hand for the season of 1912 it will be possible to work in a great many more inspections on each tour, and, by a careful arrangement of the inspections to be made on each tour, the average cost per inspection can undoubtedly be reduced. It is impossible to limit or define the cost per inspection, as the amount of work varies so greatly with each scheme, and it is, therefore, only possible to strike a general average cost for the season.

Respectfully submitted.

P. J. JENNINGS, Special Inspecting Engineer.

No. 46.

REPORT OF P. M. SAUDER.

DEPARTMENT OF THE INTERIOR, IRRIGATION OFFICE, CALGARY, ALBERTA, May 3, 1912.

R. H. CAMPBELL, Esq., Director of Forestry, Ottawa.

SIR,—I have the honour to submit herewith a brief report from Mr. P. M. Sauder, Chief Hydrographer, upon the work of Stream Measurements which has been done during the past season, 1911-12.

Your obedient servant.

F. H. PETERS, Commissioner of Irrigation.

REPORT OF P. M. SAUDER, C.E.

Department of the Interior, Irrigation Office, Calgary, Alberta, March 31, 1912.

F. H. Peters, Esq., Commissioner of Irrigation, Calgary, Alta.

Sir,—I have the honour to submit the following brief report on the work of Stream Measurements during the past year.

ORGANIZATION AND SCOPE OF WORK.

As the result of an increased appropriation we were able to extend the work very much during the past year. Considerable recomnaissance was done and a number of new gauging stations were established. In the spring of 1911 field operations were commenced with 98 regular stations and at present we are studying the regimen of flow at 132 regular stations along the various streams in Alberta and Saskatchewan, as well as securing records of the quantity of water diverted by 30 ditches for irrigation purposes. Most of the stations on ditches were established by, or at the request of, the irrigation inspecting engineers. Winter records, which are so valuable for power investigations, have been given considerable attention lately and records have been secured on almost all the important streams in the two provinces during the past winter.

The methods of carrying on the investigations were similar to those of previous years. Local residents were engaged to observe the gauge-height at regular gauging stations. These observations were recorded in a book supplied by the Department and at the end of each week the observer copied the week's records on a postal card which was sent to the chief hydrographer by the first convenient mail. The district hydrographers made regular visits to the gauging stations, usually once in every three

weeks. They examined the observers' records, made discharge measurements and collected such information and data as would be of use in making estimates of the daily flow at the station. The results of the gaugings were transmitted by a postal card to the chief hydrographer. The records of the gauge-height observers and the hydrographers were copied from the postal cards to regular forms in the office at Calgary, and filed. At the close of the open season part of the engineers returned to the office and assisted in the final computations and estimates of run-off. Gauge-height-area, gauge-height mean-velocity, and gauge-height-discharge curves were plotted and rating tables constructed. Tables of discharge measurements, daily gauge-height and discharge, and monthly discharge were also compiled. These records are being recopied and will be embodied in the third annual report of the Progress of Stream Measurements, which will be completed in a month or six weeks.

The organization in 1911 was very similar to that of the previous years. The territory covered having been very much increased during 1911, the staff was increased to include ten assistant engineers, a recorder, a computer and a clerk. The territory was divided, for administrative purposes, into ten districts, viz.: Banff, Calgary, Macleod, Cardston, Milk river, Western Cypress Hills, Eastern Cypress Hills, Wood Mountain, Moosejaw and Battleford. In each district there was an hydrographer, and while in the field he had an assistant and was equipped with the necessary gauging and surveying instruments. In the Banff, Macleod, Moosejaw and Battleford districts the hydrographer travelled by train or hired livery and stopped at hotels and stopping houses, while in the other districts they were supplied with a team, light wagon and light camping outfit.

BANFF DISTRICT.

This district includes the following regular gauging stations:—

Stream.	Location.	Date Established.
Bow river. Cascade river. Devils creek Ghost river. Jumpingpound creek Kananaskis river. Pipestone river. Spray river.	N.W. 32-24- 8-5 S.E. 19-26-11-5 S.E. 29-26-11-5 N.E. 23-26- 6-5 Sec. 30-24- 4-5 N.E. 33-24- 8-5 S.W. 27-28-16-5	July 18, 1910 May 25, 1909 Feb. 1, 1912 Aug. 16, 1911 June 18, 1910 Aug. 17, 1911 May 7, 1908 Aug. 31, 1911 Aug. 31, 1911 July 15, 1910

Bow river, with its many important tributaries, is playing a very material part in the industrial and agricultural development of Alberta. As is well known, large tracts of land lying east of Calgary and also in the vicinity of Medicine Hat are to be irrigated from it. The whole of the normal flow and a large portion of the high water have already been granted for irrigation purposes. The market for power is increasing and preparations are being made to increase the output of the existing plants and to construct new ones. During 1911 a survey under the direction of the water power branch of the Department made extensive investigations on the upper regions of Bow and Elbow rivers. With a view to a very comprehensive study of the flow of these streams, several new gauging stations were established and almost all the stations in this district have been maintained during the whole of the past winter. In a few cases the conditions have been so unfavourable that gauge-heights could not be obtained

all winter, but in almost every case discharge measurements have been made regularly at intervals of about two weeks. A large number of miscellaneous measurements at

other points and on other streams were also made during the year.

During the months of April and May, 1911, H. C. Ritchie, Grad. S.P.S., was in charge of the field-work in this district. On the first day of May, when Mr. Ritchie was placed in charge of the construction of the rating station, Benjamin Russell, B. Sc., was placed in charge. About the middle of July Mr. Russell was transferred to reservoir-site surveys and Hilton Brown was placed in charge. Mr. Brown left the service in September to resume his studies at the University of Toronto, and V. A. Newhall, B.A.Sc., was in charge of the work in this district from that time until the end of February, 1912, when he resigned from the staff, and H. C. Ritchie has been in charge since that date. The final computations for this district were made by H. R. Carscallen, B.A.Sc.

CALGARY DISTRICT.

This district includes the following regular gauging stations:—

Stream.	Location.	Date Established.
Berry creek Blood Indian creek Bow river. C. P. R. canal Elbow river Findlay and McDougall ditch Fish creek Highwood river Little Bow ditch. Nose creek. Pekisko creek Sheep river N. B. Sheep river S. B. Stimson creek	S.W. 10-23 - 8-4 Sec. 13-21-19-4 N.E. 15-24-1-5 N.E. 36-22-1-5 S.E. 15-24-1-6 S.W. 31-18-29-4 S.W. 26-22-3-5 N.W. 6-19-28-4 N.W. 17-20-28-4 N.W. 13-24-1-5 N.W. 8-17-2-5 N.W. 22-20-29-4 S.W. 12-21-3-5 S.E. 17-20-2-5	May 30, 1911 June 26, 1911 Aug. 20, 1909 Nov. 25, 1910 May 9, 1908 May 8, 1908 June 17, 1911 May 13, 1907 May 28, 1908 Oct. 3, 1911 Aug. 1, 1910 April 24, 1911 Oct. 6, 1911 May 22, 1908 May 22, 1908 May 23, 1908 Oct. 6, 1911

It will be noted that, while the western portion of the old Calgary district has been formed into a separate district, a number of new gauging stations have been established and the territory extended so that this is still a large and important district. Some attention was given to a study of the flow in the tributaries of Red Deer river, but, owing to the distance and difficulty of reaching these, the investigations were not as extensive as desired. The data obtained are, however, of considerable value, as previously there were practically no data at all. Regular gauging stations were established on Berry and Blood Indian creeks. The gauging station on Highwood river at High River is not very satisfactory and a new station has been established near Alderside. If the observer at the new station proves satisfactory, the old station will be abandoned. Stations have also been established on Pekisko and Stimson creeks, tributaries of Highwood river. The station on Bow river near Bassano was established and is maintained by the irrigation department of the Canadian Pacific Railway Company. Mr. A. S. Dawson, Chief Engineer, has very kindly given us copies of the gauge-height records and the results of their gauging. Our hydrographer also makes regular measurements at this station.

H. C. Ritchie was at first in charge of this district also, but, when he was placed in charge of the construction of the rating station, L. R. Brereton was placed in charge of the field-work in this district. After Mr. Brereton left the service in October

to resume his studies at the University of Toronto, gaugings were discontinued at all the gauging stations in this district except those on the Bow and Elbow rivers. These were included in the Macleod district and were looked after during the winter months by N. M. Sutherland. The final computations for this district were made by H. R. Carseallen.

MACLEOD DISTRICT.

This district includes the following regular gauging stations:—

Stream.	Location.	Date Established.
Belly river. Canyon river Connely creek. Cow creek Crowsnest river. Mill creek Mosquito creek Muddypound creek Nanton creek Oldman creek Pincher creek Southfork river St. Mary river Todd creek Trout creek Willow creek	N.E.14- 6- 2-5 S.E. 36-7 - 2-5 N.E.14-8 - 2-5	Aug. 31, 1911 July 6, 1910 July 31, 1909 May 26, 1910 Sept. 7, 1907 July 28, 1910 July 28, 1910 July 7, 1910 Aug. 1, 1908 July 27, 1908 Sept. 15, 1908 July 12, 1910 Aug. 13, 1906 Aug. 5, 1909 Oct. 13, 1911 July 1, 1909

This district was well organized soon after the survey was commenced and few changes were made and few new stations established during the past year. The new stations on Belly and St. Mary rivers will furnish valuable data. The importance of St. Mary river as a source of water-supply for irrigation purposes and its possibilities as a source of power are well known and the records at the new station will serve to make the data more complete. The discharge of Belly river near Lethbridge is the drainage of practically the whole of the southwestern portion of the province of Alberta and records at this point will be very valuable for general statistical purposes and, in connection with short series of measurements, will serve as the basis for estimating the flow at other points in the drainage basin. The conditions at the old station on Oldman river near Macleod have very much improved and last year this station was re-established. For some time we were unable to secure an observer at any suitable site on Trout creek above the intakes of the ditches but last year one was secured and a new station was established and the old one abandoned.

Gauge-height observations and discharge measurements have been taken throughout the past winter at all the regular gauging stations on the larger and more important streams. A large number of miscellaneous discharge measurements, which will be very valuable as general information, were also made during the year.

Owing to the coal miners' strike, industrial development in the Crowsnest district was slightly retarded during 1911. The water-supply is, however, becoming more important, and, while there is no necessity for establishing any additional gauging stations, there should be no interruption in the records at those already established. A. W. P. Lowrie, Grad. S.P.S., was in charge of the field-work in this district until the end of September, when he returned to the University of Toronto

to resume his studies. N. M. Sutherland, Grad, of the Royal Military College, has been in charge since Mr. Lowrie left. The final computations for this district were made by H. J. Duffield, C.E., and G. H. Whyte.

CARDSTON DISTRICT.

This district includes the following regular gauging stations:-

Stream.	Location.	Date Established.
A. R. & I. canal. Belly river. Christanson ditch Crooked creek Fidler ditch. Lee creek. Mami creek N. B. Milk river Ralph creek. St. Mary river. Waterton river.	N.E. 5- 2-28-4 S.E. 12- 3-28-4 S.E. 23- 2-29-4 S.E. 19- 1-26-4 N.W. 10- 3-25-4 N.E. 18- 2-27-4 N.E. 13- 1-23-4 Sec. 18- 2-20-4 S.W. 21- 2-24-4	July 26, 1910 May 27, 1909 Nov. 1, 1911 Sept. 14, 1911 Sept. 15, 1909 Sept. 13, 1911 June 28, 1909 Aug. 13, 1909 July 21, 1909 July 17, 1909 May 17, 1911 By A.R. & I. Co., 1905. Aug. 26, 1908

While a station has been maintained on Belly river near Stand Off for some time, the importance of this stream as a possible supplementary supply for the A. R. & I. Canal justified the establishment of another station in the vicinity of Mountain View. A cable station was therefore established on the N.E. quarter of Sec. 5, Tp. 2, Rg. 28, west of the 4th meridian, at West's ranch, last fall and has been included in this district.

It was impossible to secure an observer for the gauge on the North Branch of Milk river in Sec. 18, Tp. 2, Rg. 20, west of the 4th meridian, during 1911, but discharge measurements were made at every opportunity.

For several years past the Water Resources Branch of the U. S. Geological Survey, has maintained a gauging station on St. Mary river near the International Boundary. Our gauging station at Kimball is only a few miles below and it is thought that a joint station should be maintained. A self-recording water-gauge could be installed, and, by making comparisons of the results of the gauging made by the hydrographers of both countries, records of a high degree of accuracy and results which would be most satisfactory to both countries could be obtained. It is hoped that satisfactory arrangements can be made and a joint station established in the near future.

There are several streams of some importance emptying into the Waterton lakes, but, as no observers are available, regular gauging stations have not been established on these. Miscellaneous discharge measurements of these and several other streams in the district were made whenever possible during the past year.

Winter records were taken at the stations on Belly river, Lee creek, St. Mary river and Waterton river.

L. J. Gleeson, B.Sc., was in charge of the field-work in this district until the end of November, when he returned to the office to make the final computations, and D. D. Macleod, B.A.Sc., was in charge of the field-work during the winter months.

There are only a few irrigation ditches in this district and the hydrographer therefore makes the necessary inspections. Unless urgent, these are usually made in the late summer or early fall when the streams are low and almost stationary and need not be gauged as often as usual.

MILK RIVER DISTRICT.

This district includes the following regular gauging stations:-

. Stream.	Location.	Date Established.
Deer creek Manyberries creek Milk river " N.B. river S.B. "	S.W. 15-1-12-4 N E. 26-1-12-4 S.E. 3-5-6-4 N.E. 21-2-16-4 S.W. 35-1-13-4 S.W. 21-2-8-4 S.W. 19-2-18-4 N.W. 31-1-18-4	May 26, 1911 May 27, 1911 June 17, 1910 May 18, 1909 Aug. 2, 1909 Aug. 5, 1909 Aug. 7, 1909 July 15, 1909 July 14, 1909

It was impossible to secure an observer for the gauge on the North Branch of Milk river on the southwest quarter of Sec. 19, Tp. 2, Rg. 18, west of the 4th meridian, during 1911, but discharge measurements were made at every opportunity.

As has been pointed out in former reports, the bed of Milk river is composed almost entirely of sand and loose material, which shifts continually. Discharge measurements had, therefore, to be made at short intervals, and even then considerable difficulty was experienced in compiling reliable estimates of the daily discharge.

As there have been several applications for water for irrigation purposes in the vicinity of Pakowki lake, special attention was given to the records on Manyberries creek. Not only will these be useful in studying the water-supply in this stream, but, by comparing the areas of the watersheds, a fair estimate can be made of the probable run-off in other streams in the Pakowki lake drainage.

It will be noted that two gauging stations have been established on Deer creek. This is only a small stream, but a dispute has arisen between two licensees and data are required at the two points to determine the seepage. As these stations are close to the regular route of the hydrographer, little time is lost in making the gauging and the results are of some interest.

A large number of miscellaneous discharge measurements of the small streams draining into Milk river were made during the year.

In this district, also, the hydrographer makes inspections of, and reports on, irrigation works.

N. M. Sutherland was in charge of the field-work in this district during the month of April, but for the remainder of the open season J. E. Degnan was in charge. Winter measurements were made during the past winter at the regular station on the northeast quarter of Sec. 21, Tp. 2, Rg. 16, west of the 4th meridian, by D. D. Macleod. The final computations for this district were made by J. E. Degnan.

WESTERN CYPRESS HILLS DISTRICT.

This district includes the following regular gauging stations:—

Stream.	Location.	Date Established.
Anderson ditch Battle creek "Bullshead creek Cheeseman ditch Gaff ditch Gaff ditch Gap creek Gilchrist Bros. ditch Grosventre creek Lindner ditch Lodge creek E. B. creek E. B. Mackay creek W. B. " McShane creek McKinnon ditch Maple creek Marshall ditch Marshall and Gaff ditch Middle creek "" Oxarart creek Richardson ditch Ross creek Sage creek Sixmile coulee Spangler ditch Starks and Burton ditch Starks and Burton ditch Starlsa and Nash ditch Tenmile creek Tenmile creek Tenmile creek	S. W. 23-6-3-4 S. W. 2-6-28-3 N. E. 33-5-29-3 N. W. 15-9-5-4 S. W. 12-8-29-3 S. W. 31-11-26-3 S. W. 31-11-26-3 S. W. 31-10-27-3 S. W. 31-10-27-3 S. E. 27-9-4-4 Sec. 10-6-29-3 Sec. 12-1-29-3 S. W. 15-6-3-4 S. E. 17-3-4 N. W. 36-10-1-4 S. E. 17-3-4 N. W. 36-10-1-4 S. W. 23-10-2-4 Sec. 4-10-27-3 N. W. 20-4-26-3 N. E. 16-11-26-3 N. E. 16-11-26-3 N. E. 33-5-29-3 S. W. 25-5-29-3 S. W. 35-5-1-4 S. W. 30-5-29-3 N. E. 26-27-3 N. E. 26-27-3 N. E. 26-27-3 S. E. 25-27-3 N. W. 24-9-3-4 S. W. 36-6-29-3 N. W. 36-6-29-3 N. W. 36-6-28-3 S. E. 17-11-5-4 Sec. 23-27-3 S. E. 17-11-5-4 Sec. 22-3-27-3 S. W. 4-6-29-3 S. W. 4-6-29-3	Sept. 23, 1911 July 5, 1910 June 3, 1909 May 10, 1910 Oct. 9, 1911 June 24, 1911 July 11, 1911 May 3, 1910 April 25, 1909 Oct. 16, 1911 Oct. 10, 1911 July 26, 1910 Aug. 13, 1909 July 22, 1909 Oct. 7, 1911 Oct. 12, 1911 April 23, 1909 Oct. 12, 1911 April 23, 1909 Oct. 20, 1911 May 9, 1908 May 4, 1910 July 11, 1911 July 11, 1911 July 11, 1911 July 11, 1911 July 20, 1909 June 13, 1910 June 15, 1909 Oct. 14, 1911 Oct. 11, 1911 Aug. 10, 1909 July 4, 1911 July 22, 1909 July 10, 1911 Oct. 9, 1911 July 11, 1911 July 11, 1911 July 11, 1911 July 11, 1911 July 22, 1909 July 11, 1911 July 11, 1911 July 11, 1911 July 11, 1911 July 11, 1911 July 11, 1911 July 11, 1911 July 11, 1911 July 11, 1911 July 11, 1911 July 11, 1911

The majority of applications for water for irrigation purposes during the past few years have come from the Cypress Hills, and, as apparently almost the total flow of many of the streams has already been granted, the records in this district are very important. It is impossible to obtain records on every stream in the district, but stations have been established and are maintained on all the more important streams and, by a careful comparison of watersheds, fair estimates of the probable flow can now be made for many of the smaller and less important streams for the same year. There are, however, very big differences in the run-off for different years, and it will be some years before the records will show the extremes of flow and a reliable mean.

During the past year, M. H. French, who was in charge of the field-work in this district, made a reconnaissance of the country surrounding Old Fort Walsh and the heads of Battle, Lodge, Mackay, Ross and Bullshead creeks and established several new stations. W. A. Fletcher, irrigation inspector, established the gauging stations on most of the irrigation ditches in this district, but, as some of the ditches were not used during 1911 and in other cases the gauge was not installed until after the irrigation season, few records of the flow in the ditches have been secured.

A heavy rain and snow storm in September caused an unexpected flood in many of the streams in this district and the run-off during the fall was higher than the average.

A large number of miscellaneous gaugings, which will be valuable as general information, were made in this district during 1911. No winter records were taken.

M. H. French was in charge of the field-work and also made the final computations. He left early in March of this year for the field so as to be on hand to gauge the first spring freshets.

EASTERN CYPRESS HILLS DISTRICT.

This district includes the following regular gauging stations:—

Bear creek S. E. B. Bear creek S. W. B. S. Belanger creek S. S. S.	Location. E. 23-7-21-3 E. 18-11-23-3 E. 21-10-23-3 W. 32-10-23-3 W. 18-7-25-3	Date Established.
Bear creek S. E. B. Bear creek S. W. B. " Belanger creek S. S. S.	E. 18-11-23-3 E. 21-10-23-3 W.32-10-23-3	June 22, 1908 Aug. 18, 1909 Sept. 16, 1909
Blacktail creek	W. 18-10-24-3 . E. 7-10-24-3 . W. 31-6-23-3 . W. 34-8-22-3 . E. 30-11-23-3 . W. 11-11-22-3 . E. 33-10-22-3 . W. 15-7-22-3 . E. 29-6-25-3 . E. 29-6-25-3 . E. 29-10-22-3 . E. 31-10-22-3 . E. 31-10-22-3 . E. 31-6-21-3 . W. 29-10-25-3 . W. 25-10-25-3 . W. 25-10-25-3 . W. 25-10-25-3 . W. 26-6-21-3 . W. 30-11-23-3 . E. 18-11-24-3 . Sec. 26-7-22-3 . W. 10-11-22-3 . E. 29-10-22-3 . W. 24-6-26-3 . W. 22-7-21-3 . Sec. 26-7-22-3 . W. 24-6-26-3 . W. 22-7-21-3 . Sec. 26-7-22-3 . W. 21-6-26-3 . W. 22-7-21-3 . Sec. 26-7-22-3 . W. 21-6-26-3 . W. 22-7-21-3 . Sec. 26-7-22-3 . W. 21-6-26-3 . W. 22-7-21-3 . Sec. 26-7-22-3 . W. 21-7-10-19-3 . Sec. 26-7-22-3 . W. 21-7-21-3 . Sec. 26-7-22-3 . W. 21-6-26-3 . W. 22-7-21-3 . Sec. 26-7-22-3 . W. 21-7-21-3 . Sec. 26-7-22-3 . Sec. 26-7-22-3 . W. 21-7-21-3 . Sec. 26-7-22-3 . W	June 12, 1909 June 5, 1911 June 9, 1911 Aug. 3, 1909 July 2, 1908 July 22, 1911 July 29, 1909 April 28, 1911 Sept. 9, 1911 May 24, 1909 July 31, 1908 June 10, 1909 July 6, 1911 July 6, 1911 July 6, 1911 July 6, 1911 July 31, 1908 April 22, 1909 July 41, 1909 Aug. 10, 1911 June 22, 1911 June 23, 1911 June 24, 1911 June 29, 1908 April 8, 1911 June 28, 1909 May 18, 1909 May 26, 1909 May 18, 1909 May 27, 1910 June 15, 1910

The remarks regarding the conditions in the Western Cypress Hills district apply also to this district. The greatest irrigation development has been in the Frenchman river drainage basin, and special efforts are being made to get gaugings in this locality during high-water and flood stages of the streams. This, however, is a large district with many long drives, and it is impossible always to be on hand at a particular station when the stream is high. There has also been difficulty in securing good observers. The records have, however, improved considerably during the past year.

Several gauges were installed on irrigation ditches by F. T. Fletcher, irrigation inspector, but, as some of the ditches in this district were not used during 1911, and most of the gauges were not installed until after the irrigation season, few records of the flow have been secured.

As a large amount of water is diverted from Frenchman river above the old gauging station, the records have not been altogether satisfactory. It was, therefore,

decided to establish two cable stations at points above East End. The cables were stretched late last fall, but, owing to bad weather, the hydrographer was unable to finish these stations. They will be completed and put in good shape this spring, and it is expected that better and more satisfactory records will be obtained. The records on Bridge and Skull creeks have been much improved by the additional data secured at the new stations above the intakes of Fearon and Moorehead's ditches. A gauge was placed on Mule creek, but, as a satisfactory observer could not be secured, no records except periodic discharge measurements were secured.

The storm in September also raised the streams in this district but not as much

as in the Western Cypress Hills district.

A large number of miscellaneous gaugings which will be valuable as general information were made in this district during 1911. No winter records were taken.

G. H. Whyte was in charge of the field-work and also made the final computations in this district. It was planned that he should leave in March of this year for the field, so as to be on hand to gauge the first spring freshets, but the 1912-13 appropriation not being available, he cannot leave until after the first of April.

WOOD MOUNTAIN DISTRICT.

There is only one regular gauging station in this district, namely:-

Stream.	Location.	Date Established.
Frenchman river	Sec. 5-5-14-3	May 23, 1910

During 1911, a study was made of the water-supply and possibilities of irrigation development in a large and partially settled district in the southern part of Saskatchewan, including the drainage basins of Lake Chaplin, Lake Johnston, Big Muddy lake, Poplar creek, Rocky creek and the lower part of Frenchman river. Early in June, N. M. Sutherland and myself left Swift Current and made a circuit of the western portion of this district. I returned to Calgary at the end of June and the investigations were continued by Mr. Sutherland.

An account of the work done in this district is given in a separate report by Mr. Sutherland. For this work Mr. Sutherland was provided with a light camping outfit, one man and three horses. He travelled about 1,660 miles and reported 109 gaugings. While many of the reports showed that the streams were dry, nearly dry, or had water standing in pools, it should be remembered that a trip had to be made to the stream to learn the condition. Reports on streams even when dry are just as important as when they are running as they show the actual conditions of the stream at that time.

As a result of the investigations during 1911, it has been decided that the possibilities of irrigation in this district are so limited that there will be no necessity to carry on any further reconnaissance on stream-measurement work for the present.

As suggested by Mr. Sutherland, in a few years time the farmers in this locality may wish to use the water from springs for irrigation purposes, and, when such occasions arise, no doubt investigations will have to be made of the schemes.

The records of flow for the regular station on Frenchman river were not very satisfactory. At first we could not secure an observer, and then beavers built a dam below the gauge and caused the water to back up on it. As these difficulties still exist, and there will be no hydrographer in the district during 1912, it has been decided to abandon this station.

MOOSEJAW DISTRICT.

This district includes the following regular gauging stations:-

Stream.	Location.	Date Established.
Boxelder creek Bridge creek Bridge creek Bullshead creek Long creek Mackay creek Moosejaw creek " " Qu'Appelle river Ross creek S. Saskatchewan river Seven Persons river Souris river " " " " " " " " " " " " " " " " " " "	S.E. 23-13-19-3 Sec. 16-12-5-4 S.E. 10-2-8-2 N.W. 26-11-1-4 N.W. 14-15-25-2 N.W. 16-16-26-2 N.W. 19-11-18-2 S.W. 33-19-21-2 N.W. 31-11-2-4 N.W. 31-12-5-4 N.E. 30-12-5-4 N.E. 30-12-5-4 N.E. 36-2-1-2 Sec. 6-4-26-1	May 24, 1909 Mar. 29, 1911 July 26, 1909 June 22, 1911 July 29, 1909 April 13, 1910 April 7, 1910 June 21, 1911 May 12, 1911 July 28, 1909 May 31, 1911 April 27, 1910 June 26, 1911 July 20, 1911 April 30, 1910

It is imperative that records should be continued on Moos jaw creek for several years, and, as there are a number of important streams crossing, and in the vicinity of, the railway between Medicine Hat and Broadview, and between Moosejaw and Melita, it was decided to have an hydrographer look after these by train.

Some time was spent in reconnaissance to find the most suitable sites before the new stations were established. Besides those shown above, stations were established on Qu'Appelle river at points north of the towns of Qu'Appelle and Indian Head, but the current was so sluggish at these two points that the records were not satisfactory and the stations have been abandoned.

J. C. Keith, B.A.Sc., was in charge of the field-work in this district. After the stations had been established he did not retain a regular helper but engaged locally any help he required. Mr. Keith made a number of miscellaneous gaugings and inspected several works to divert water for domestic and industrial purposes.

Winter records were taken at the stations on Moosejaw creek near Moosejaw and Qu'Appelle river at Lumsden during the past winter. They were included in the Batttleford district during that period.

Final computations for this district were made by M. H. French and G. H. Whyte.

BATTLEFORD DISTRICT.

This district includes the following regular gauging stations:-

	Stream.	Location.	Date Established.
Red Deer river	ver	S. E. 20-38-27-4 N. W 33-52-24-4 N. E. 29-43-16-3	June 17, 1911 Dec. 2, 1911 May 14, 1911 May 18, 1911 Oct. 2, 1911 May 27, 1911

While the North and South Saskatchewan rivers are not likely to be of importance for irrigation purposes, they are large streams and may be utilized for power and irrigation purposes. The watersheds are large and records on these streams will also be of considerable value for general statistical purposes.

Investigations in this district were commenced in March, 1911, when miscellaneous gaugings were made on the North Saskatchewan river at Edmonton and Battleford

by W. H. Greene.

In May, H. R. Carscallen was placed in charge of this district and at once established gauging stations at Edmonton, Battleford and Saskatoon. Later, a station was

established at Prince Albert, by J. C. Keith.

In 1910, Mr. Keith reconnoitred Red Deer river in the vicinity of Red Deer and found that the most suitable site for a regular gauging station was at a traffic bridge west of Innisfail. Arrangements were made for an observer, but he failed to perform the duty. Gaugings were made at regular intervals at this station during 1911, but no gauge-height observations were secured. In November a further reconnaissance was made, and as the cross-section has improved, and conditions are now fairly good, a station was established at the traffic bridge in the town of Red Deer.

Mr. Carscallen had charge of the field-work in this district until the end of July, when he received leave of absence. After that Mr. Keith included this district in his route. Gaugings were continued during the winter at all the stations except the one on Battle river. Mr. Keith resigned on February 29, and H. J. Duffield was then placed in charge of the field-work in this district. Different members of the staff have done parts of the final computations for this district, but they are only partly finished.

They will be finished as soon as possible.

On account of the distance between the stations the travelling and living expenses of the hydrographer are somewhat higher than in the other districts. For several months the hydrographer worked without a regular helper and hired locally what help he required, but, as the rivers in this district are very large, much skill is required in making accurate measurements, particularly the soundings, and so much time was lost with an inexperienced helper that it was decided that the hydrographer should have a regular helper.

RATING METERS.

H. C Ritchie acted as resident engineer on the construction of the rating station, the design and construction of which was carried out under your personal direction, and is, I understand, taken up in your report.

On the completion of the rating station Mr. Ritchie was transferred to the

National Parks Branch and V. A. Newhall was detailed to rate the meters.

All the meters of the survey, except four which were not used during 1911 and one which was badly damaged, were rated and tables were carefully compiled for each. Three meters belonging to the British Columbia Railway Belt Hydrographic Survey and one belonging to the irrigation department of the Canadian Pacific railway were also rated. A number of meters were re-rated just before freeze-up last fall and all the hydrographers are provided this spring with newly rated meters. The spare meters will be rated as soon as possible, and, whenever an hydrographer has reason to believe that the rating of his meter has changed, a newly rated meter will be sent out to him and he will return the old meter. Meters will be rated periodically to test them. It is proposed this year to keep an hydrographer at headquarters to rate meters, look after the taking of gravel from Bow and Elbow rivers within the limits of the city of Calgary, and do any special hydrographic work that may arise.

BENCH-MARKS.

In previous years, when establishing regular gauging stations, the gauge was usually referred to a bench-mark on a wooden stake or stump of a tree. These were 25—vi—14

easily shifted or destroyed and were not satisfactory. During 1911, permanent iron bench-marks were established at sixty-two regular gauging stations. Except where the gauge can be referred to a bench-mark on a concrete pier or other permanent structure, all the new gauges, and as soon as possible all the old gauges, will be referred to permanent iron bench-marks. An assumed elevation has been given to each benchmark but it is expected that the actual elevation above mean sca-level will eventually be determined.

OFFICE WORK.

As above intimated, the reports of the gauge height observers and the hydrographers are transmitted to the office by postal cards. These are copied on office forms and filed in a cabinet which is carefully indexed and where they can be referred to at any time without trouble. As the engineers completed their computations, the results were entered on convenient forms and filed in the same cabinet.

A cabinet made up of four styles of drawers is used for filing the records. The top section is used for filing the gauge-height books of the observers and the currentmeter note-books of the hydrographers. The gauge-height looks are filed alphabetically according to the names of the gauging stations, while the current-meter notebooks are filed alphabetically according to the names of the hydrographers. The next section contains the postal cards sent in by the observers and the hydrographers. Both of these are filed alphabetically according to the names of the gauging stations. The third section is made up of map drawers and contains the gauge-height-area, gauge-height-mean-velocity and gauge-height-discharge curves, and plotted cross-sections, which are filed alphabetically according to the names of the gauging stations. The same section contains the maps showing the outline of the drainage basins filed numerically according to the number of the sectional sheet. The rating curves for the current meters are also filed in this section numerically according to the office numbers of the meters. The bottom section of the cabinet consists of letter-size pockets alphabetically arranged for each gauging station. The tables of gauge-heights, discharge measurements, daily gauge-height and discharge, monthly discharge, and a description of the station and memos of any changes are filed in these pockets. The different rating tables for each meter are also filed numerically in this section and another drawer contains the monthly reports of the meteorological service.

The copying and filing of the reports of the gauge height observers and the hydrographers is entrusted to the office recorder. While doing this he must carefully examine all records to see that there are no errors or mistakes, and where there are doubtful or impossible records it is his duty to have the data corrected or ascertain the cause of the unusual condition. He also makes out the pay list for the observers and conducts the correspondence relating to the records.

We did not have a regular recorder until about the end of July when R. H. Goodchild was engaged. He is to be placed on irrigation inspections and G. H. Nettleton will be placed in charge of the records.

All computations made by the survey are checked before being used or published. For this reason, as far as possible, men with with some technical education or students in science are engaged as helpers. The gaugings are computed by the helper and his work is checked by the hydrographer. In some instances, where there is a great deal of driving and camping out, the hydrographer cannot secure a helper who can compute discharges, and in that case he computes the discharges himself and his computations are checked in the office. Gaugings of the flow under ice are usually made by using the multiple point method and vertical velocity curves have to be plotted to determine the mean velocity in the vertical. The computation by this method is long and tedious and cannot be done by the hydrographer in the

field. There are, therefore, a great many computations to be made in the office and the services of a computer have been required. As a result of not having one, a large amount of checking and computing had to be done by the hydrographers after they returned to the office, and for that reason the computation of daily discharge for 1911 had not been all completed when spring arrived and the hydrographers had to leave for the field. Those that are unfinished are mostly for the months of November and December, when ice conditions prevailed, and considerable time has to be spent in computing the discharge. During the winter months R. J. Srigley, one of the helpers, was utilized as a computer. He is, however, going out in the field again as a helper and a computer is argently required.

FUTURE WORK.

Investigations will be continued during the coming year in all the old districts except Wool Mountain, and every effort will be made to extend the territory covered by the survey, but the scope of the work is of course limited by the appropriation and staff available.

There are a number of important streams which rise in the mountains west of the Calgary and Edmonton branch of the Canadian Pacific Railway. With the advent of railways, industries will soon be started in this district and the water-supply will be an important factor. A small party, such as operated in Wood Mountain district during 1911, should, I think, be placed in this district in the near future.

An effort will be made during the coming year to collect data regarding the flow in the streams along the Grand Trunk Pacific railway west of Edmonton. As soon as funds and staff are available. I think the survey should be extended to include the Athabaska river drainage basin.

I do not think it necessary to elaborate on the importance of continuing observations during the winter on the more important streams. The minimum flow occurs during that season and should be determined for use in considering power schemes. While it was realized that the streams got very low during the winter, the results of the investigations in many cases show much lower discharge than was expected. An instance of the value of winter records may be cited in the case of the Elbow river. Estimates of the possible power development, based on records of the flow during the open season, were found to be far too high when records of the winter flow were taken.

I would also repeat my suggestion of last year that the survey should be extended eastward to include the streams in the province of Manitoba. As the market for power is increasing, the time is approaching when every site will be developed. Reliable estimates of the possible power development cannot be made without a knowledge of the water-supply, and, as records should extend over a period of several years to show the extremes of flow and a reliable mean, it is important that the studies be commenced at the earliest possible date.

The water-supply is one of the most important resources of a country, and an accurate knowledge of the flow of water in nearly all important streams is essential for the solution of many problems in connection with navigation, water-power, irrigation, domestic and industrial water supplies, sewage disposal, mining, bridge-building, river-channel protection, flood prevention, and storage for conservation of flood-waters. The records of the survey are being used quite extensively now by engineers and I think the time is near at hand when the field operations should be extended to include other parts, if not the whole, of the Dominion.

Respectfully submitted.

P. M. SAUDER.

Chief Hydrographer.

No. 47.

REPORT OF N. M. SUTHERLAND, DISTRICT HYDROGRAPHER.

DEPARTMENT OF THE INTERIOR, IRRIGATION OFFICE,

CALGARY, ALBERTA, October 5, 1911.

F. H. Peters, Esq.,

Commissioner of Irrigation, Calgary, Alta.

Sir,—I have the honour to submit the following report on the work done in the Wood Mountain district, during the summer of 1911.

In accordance with your instructions, dated May 23, 1911, I proceeded to Maple Creek, Saskatchewan, where I received my camp outfit, including horses, &c., from Mr. R. J. Burley.

On June 6 we left Maple Creek and proceeded along the Canadian Pacific railway to Swift Current, arriving there on June 10. At Swift Current we met Mr. P.

M. Sauder and, accompanied by him, we left Swift Current on June 11.

We at first travelled south from Swift Current and inspected Pierce, Notukeu and Bull creeks. There are small flats along these creeks which are suitable for irrigation and during dry years require irrigation to grow a crop. The water-supply, in this district, however, is very limited. When the snow is melting, or during periods of heavy and continuous rain, there are small floods, but in a dry year, as nearly as can be learned from the older settlers, the flow in these streams gradually diminishes and stops altogether early in the summer. We did not establish any regular stations or gauge-rods at any of these creeks, as at Pierce creek the only available place to gauge it was some three miles from Mr. Pierce's house and at Notukeu and Bull creeks the land is homesteaded and there is no one with permanent residence, and therefore no gauge-rod readers were available,

From Bull creek we proceeded to Huff's ranch on the Frenchman river and re-established the gauge on the northwest quarter of Sec. 5, Tp. 5, Rg. 14, west of the 3rd meridian. From Huff's ranch we followed the north shore of the Frenchman river to Seventy-Mile crossing in Sec. 32, Tp. 3, Rg. 13, west of the 3rd meridian, where we crossed the river, and, after following the south shore for a couple of miles, pulled west out on the benchland and did not touch the river again until we crossed it in Sec. 4, Tp. 1, Rg. 10, west of the 3rd meridian, near the international boundary. Along the Frenchman river there are large flats, which are quite suitable for irrigation, but there is little opportunity of storing water. Most of the level land has been filed on by homesteaders.

Following the international boundary towards the east, we crossed a very rolling prairie which is quite suitable for ranching and grazing purposes. There are a number of streams flowing south and southeast, which had water in pools. From what we could learn from the older settlers, these streams remain in this condition almost

every summer but do not have any flow except during the spring freshets.

The streams were all of this nature until we reached Rocky creek in Tp. 1, Rg. 6, west of the 3rd meridian. This creek had a flow of over three second-feet, and is fed by some very strong springs and drains several townships. It has a constant flow and would probably irrigate several hundred acres. Near the international boundary this stream traverses a large flat of several hundred acres which could be irrigated. After following upstream for a few miles we found that Rocky creek passed through bad lands which were impassable with a wagon. We therefore left the creek and

turned northeastward, and, after crossing a very hilly district quite suitable for ranching and grazing purposes, we crossed Rocky creek in Sec. 18, Tp. 2, Rg. 4, west of the 3rd meridian. In this locality the creek flows through a narrow valley, with little opportunity to irrigate. Rainy weather had made travelling very difficult, and, as our supply of oats and food was almost exhausted, we decided to go to Wood mountain for supplies. On reaching there we found that there was no store and we could not get either groceries or oats. It was, therefore, decided to leave the boundary line and inspect Wood river.

One branch of Wood river rises near Wood Mountain post office. This had almost ceased flowing, but a rain storm started a very small flow while we were there. There was a small flow into Twelve-Mile lake, but no overflow. Following this branch of Wood river, which had a little water in pools, we reached the main stream on Sec. 6, Tp. 8, Rg. 5, west of the 3rd meridian, near Capital post office and inspected it at several points between Capital and Lake Johnston. There is only a very small flow in this stream, and, as it has a very small fall, there is scarcely any current at all. It was impossible to find a place where a meter could be used near Capital. We made a slope measurement, but owing to the dense growth of grass in the channel the results were very unsatisfactory. We made a gauging on Sec. 31, Tp. 10, Rg. 4, west of the 3rd meridian, near Gravelbourg, and found the discharge to be about 6.5 second-feet, but it was impossible to gauge the river near Lake Johnston.

Wood river has a very small fall and is more of the nature of a long slough than of a running stream. The channel is from twenty to fifty feet wide, and is from two to five feet deep. The bottom is composed of soft clay and is covered with weeds and grass. There is so little fall that it would be impossible to take out water by gravity and a dam would flood a large area of good agricultural land. The drainage basin includes a very good agricultural district, but there is little possibility of irrigation development. Notukeu creek had a small flow near its mouth but Pinto and Wiwa creeks were practically dry at their mouths. There was no flow at all from Lake Chaplin to Lake Johnston and there has not been for several years.

Mr. Sauder left the party at Courval post office, on June 28. Following Mr. Sauder's instructions, I proceeded north to Morse and then to Swift Current.

From Swift Current we proceeded south over the same route as that followed on the previous occasion as far as Seventy-Mile crossing in Tp. 3, Rg. 13, west of the 3rd meridian. On this occasion we struck east from Seventy-Mile for several miles and then south, coming to the Frenchman river in Sec. 34, Tp. 2, Rg. 12, west of the 3rd meridian. We crossed the river here and followed the west shore to McArthur's ranch, Section 18, Tp. 2, Rg. 11, west of the 3rd meridian. Here we left the river and struck southeast across the bench until we reached the boundary line, and then east to the river. We passed several coulees running into the Frenchman river in Tp. 2, Rgs. 11 and 12, but none had running water.

Leaving the Frenchman river we proceeded east along the boundary line over the same route as on the previous occasion as far as Rocky creek in Sec. 5, Tp. 1, Rg. 6, west of the 3rd meridian. From here we continued in an easterly direction, touching the west branch of Poplar river in Sec. 5, Tp. 1, Rg. 3, west of the 3rd meridian, and the centre, or main, fork of Poplar river in Sec. 8, Tp. 1, Rg. 29, west of the 2nd meridian. The west branch of Poplar river had a very small flow of about 0.08 second-feet. It resembles Wood river in many ways, being from thirty to seventy-five feet wide and from two to three feet deep. It is full of weeds and is very sluggish. The main fork of Poplar river is also sluggish in many places. The banks are very low for some distance on both sides and are probably covered with water during the early spring. The discharge of this stream was 0.8 second-feet.

On account of running short of provisions we travelled north from Poplar river to Willow Bunch. Here, on account of my teamster giving notice of leaving, I decided to return to Swift Current.

From Willow Bunch we followed the pole trail to Wood Mountain and then took the old police or Hudson Bay trail to Seventy-Mile crossing. From Willow Bunch to Wood mountain, we did not pass any streams, although there is considerable moisture supplied by springs. On leaving Wood mountain we travelled by a good trail over a rolling country which brought us across the head-waters of Wood river, which consists of about twelve creeks running north and northeast. Of these creeks only four had running water in them, and, as the country is rolling, there is little possibility of irrigation. Leaving the head-waters of Wood river we crossed the head-waters of several creeks running south into the Frenchman river. These followed deep coulees, but did not have any flow at that time. Apparently the only time of the year that these creeks flow is during the time that the snow is melting or during very heavy rains. From Seventy-Mile crossing we travelled north to Notukeu creek by way of Huff's ranch following the same trails as we did when going south. We then travelled along Notukeu creek to the northeast quarter of Sec. 29, Tp. 9, Rg. 12, west of the 3rd meridian, passing Pierce creek on the way. Pierce creek had a very small flow at its mouth, but I do not think that this flow would be added to if Mr. Pierce were to discontinue using the north fork of this creek for irrigation purposes. The flow above his head-gates is very small and would in all probability disappear before reaching Notekeu creek. After leaving Sec. 29, Tp. 9, Rg. 12, west of the 3rd meridian we travelled north to the head-waters of Whisky (or Russell) ereek in Sec. 36, Tp. 11, Rg. 13, west of the 3rd meridian. This had a discharge of 1.5 second-feet, but there is little possibility of irrigation. From this point we travelled northwest to Swift Current and did not pass any further streams on the way.

After obtaining another teamster I again left Swift Current and travelled south to the Frenchman river at the boundary line, inspecting Pierce, Notukeu and Bull creeks on the way; also the Frenchman river at Huff's ranch. We followed the same route as on the previous occasion with the exception that when travelling from Seventy-Mile crossing to the boundary line we followed the west shore of Frenchman river as far as Heinrich's ranch in Tp. 1, Rge. 11, west of the 3rd meridian, before striking west to the bench. There are flats along the Frenchman river between McArthur's ranch and Heinrich's ranch which could probably be irrigated by storing water in the coulees which run into Frenchman river.

From Frenchman river we followed the boundary line over the same route as on the former trip as far as Poplar river, inspecting Rocky creek and others crossed on previous occasions. Levels were run on Rocky creek and the west branch of Poplar river. The fall in Rocky creek taken in Sec. 5, Tp. 1, Rg. 6, west of the 3rd meridian, is 2.225 feet per mile, while that in the west branch of Poplar river in Sec. 5, Tp. 1, Rg. 3, west of the 3rd meridian, is 0.5 feet per mile.

From Poplar river (Sec. 1-1-29-2) we continued east over a very rough rolling prairie, crossing the east fork of Poplar river in Sec. 4, Tp. 1, Rg. 26, west of the 2nd meridian. This river has a large flat in Tp. 1, Rg. 26, west of the 2nd meridian, which could be irrigated. The discharge of the river on August 23 was 4.98 second-feet. The country between ranges 25 and 23 was so rough that we had to travel some distance south of the boundary line. No streams were passed until we reached Beaver creek in Sec. 5, Tp. 1, Rg. 23, west of the 2nd meridian, which had a flow of 0.539 second-feet. The country around Beaver creek is very rolling and unsuitable for irrigation. We continued east until we reached Sec. 4, Tp. 1, Rg. 22, west of the 2nd meridian, and, striking a good trail here leading to Plentywood, Montana, and being about out of oats and provisions, we decided to go there to replenish our supply.

From Plentywood we travelled due north to the boundary line at Sec. 1, Tp. 1, Rg. 21, west of the 2nd meridian, and from here to Big Muddy police detachment, in Sec. 10, Tp. 1, Rg. 22, west of the 2nd meridian. There is a large flat here of heavy soil which leads from Big Muddy lake. We followed this flat until we came to the lake and found that there is a very great deal of alkali both at the lake and all along the valley.

Leaving Big Muddy lake we travelled west, crossing the head-waters of Beaver creek in Tp. 2, Rg. 24, west of the 2nd meridian. The country was very rolling and the creeks were either dry or had water standing in pools; none were flowing. On striking the trail to Willow Bunch we followed it until we reached the town.

From Willow Bunch we travelled southwest to Fife lake and then to J. M. Knox's ranch in Sec. 28, Tp. 3, Rg. 3, west of the 2nd meridian. We passed Hay-meadow creek, which has a very large flat along it, and had a discharge of 13.26 second-feet. This, however, was taken after a very heavy rain and the normal discharge of the creek is very probably somewhat less. At J. M. Knox's place there is a large flat which covers the greater part of the northwest and southwest quarters of Sec. 28, Tp. 3, Rg. 30, west of the 2nd meridian. In a coulee in Sec. 29, Tp. 3, Rg. 30, west of the 2nd meridian, there is a large spring which could be used to irrigate the land owned by Mr. Knox. Owing to the porous nature of the soil, which is a heavy sandy loam, the water from this spring disappears in the N.W. quarter of Sec. 28, Tp. 3, Rg. 30, west of the 2nd meridian. Although the country is very hilly for some miles west and south of this point and is probably more suitable for ranching purposes than for agriculture, there are numerous springs throughout the district which lead into small flats which could with small expense be irrigated. Many of the settlers in this district are from the western states and have used irrigation previous to the time of their coming to Canada to live. We made a short trip to a small creek in Sec. 2, Tp. 4, Rg. 1, west of the 3rd meridian, which had a discharge of 0.994 second-feet; there are small flats of about ten acres each which could be irrigated. From J. M. Knox's place we travelled to Mr. Franks' place in Sec. 17, Tp. 4, Rg. 1, west of the 3rd meridian. There is a fine large spring in the S.W. quarter of Sec. 17, Tp. 4, Rg. 1, west of the 3rd meridian, which forms the head-waters of Hay-meadow creek. The fall for several hundred feet from the spring is 1 foot in 100 feet. Mr. Franks could use this spring to irrigate about ten acres in the quarter-section south of him. From this point we travelled to Wood mountain and then followed the same route as we did while Mr. Sauder was with us, as far as Lynthrop in Sec. 1, Tp. 7, Rg. 4, west of the 3rd meridian, taking gaugings of Wood creek in Sec. 20, Tp. 4, Rg. 3, west of the 3rd meridian, and near its mouth at Twelve Mile lake in Sec. 4. Tp. 6, Rg. 3, west of the 3rd meridian. At the latter point the discharge was 4.36 second-feet. This rather large flow was caused by recent heavy rains.

From Lynthrop we travelled northwest to Gravelbourg, crossing Wood river in the N.W. quarter of Section 18, Tp. 10, Rg. 4, west of the 3rd meridian. There is a very good cross-section at this point, and it is the only good place to take gaugings which we met with along the Wood river. The discharge here was 5.21 second-feet. Levels were run along Wood river in Section 31, Tp. 10, Rg. 4, west of the 3rd meridian, which gave a fall of but 0.5 feet per mile. While at Gravelbourg we made a trip north, crossing Notukeu and Wiwa creeks, and touched Wood river in Section 4, Tp. 13, Rg. 4, west of the 3rd meridian. On account of the river being very low the result obtained at the latter point was poor.

On leaving Gravelbourg we travelled west along the township line between Townships 10 and 11 as far as Notukeu creek in Section 5. Tp. 11, Rg. 10, west of the 3rd meridian. The discharge here was 11.76 second-feet. Striking north we crossed Russell creek near its mouth at Section 17, Tp. 11, Rg. 10, west of the 3rd meridian (discharge, 1.183 second-feet), and Mosquito creek in Section 20, Tp. 11, Rg. 10, west of the 3rd meridian. From this latter creek we travelled northwest to Swift Current. On receiving your instructions, dated at Calgary on September 18th, I took the transport and camp equipment to Maple Creek, disposing of it there as per your instruction.

With regard to further work in the Wood Mountain district, there is little possibility of irrigation development outside of the Frenchman river, Rocky creek,

and some very small schemes in the townships on the west side of Fife lake, and I do not consider that further data in this district are of sufficient importance to warrant the expense of keeping an outfit in this district another year.

Respectfully submitted,

N. M. SUTHERLAND,

District Hydrographer.

No. 48.

SPECIAL REPORT OF THE COMMISSIONER OF IRRIGATION ON LEVELLING OPERATIONS DURING 1911.

The development of a system of levels over the country is the first step towards studying the possibilities of conserving the natural water-resources and ascertaining how much of the water can be put to beneficial use and where it can be so used. Levelling operations would connect the widespread areas in such a way as to determine the possibilities of taking water from the great river-systems and using their latent potentiality in the form of power production or for irrigation, industrial or domestic purposes. Without making any close investigation it may be said that there is more land that would be benefited by irrigation than there is water available for it, and, therefore, steps should now be taken to ascertain the possibilities of making the maximum use of the water available.

The necessity for this kind of information may not be urgent to-day, but undoubtedly will be in the future, and it is far better to set to work now to develop this information in accordance with a well-thought-out general plan than to take it up hurriedly, at widely separated points, and at greatly increased cost, whenever special information is urgently required.

Some years ago, when the possibilities of irrigation in Canada were first realized, the government undertook some levelling operations which were, to a large extent, the means of developing the possibilities of the two great irrigation schemes now under construction, viz.: the Canadian Pacific Railway scheme at Calgary and the Alberta Railway and Irrigation Company's scheme at Lethbridge. If this work is taken up again it is quite possible that equally great potentialities may be developed in the future.

This work is not a new departure by any means. The idea of developing levels in Western Canada is mainly with a view to developing the natural water-resources, but in all the older countries of the world the topographical features of the land have been developed to a large extent for reasons of general utility. The complete topography of England has been developed by the war department, mainly, it is understood, for the purpose of studying schemes of defence. The topography of practically the whole of the state of New York has been developed to five-foot contours, and the following extract from a paper published in Engineering News, September 15, 1910, by E. M. Douglas, Geographer, United States Geological Survey, Washington, D.C., gives a good idea of how much of this work has been done generally in the United States:—

'Exact figures for the total number of miles of line run are not available, but the reports of the U.S. Geological Survey show that since 1897, when such work was authorized by Congress, there have been run over 200,000 miles by that burean alone, in connection with which more than 24,000 substantial metal bench-marks have been established. The levelling by the Corps of Engineers, United States Army, along the Mississippi and

Missouri rivers, amounts to over 5.000 miles. The Lake Survey, in connection with its work, has run nearly 1,000 miles; the Coast and Geodetic Survey more than 13,000, and the Reclamation Service and other bureaus add to the total, so that in all there have been not less than 225,000 miles of line run from which accurate elevations have been determined for more than 30,000 bench-marks on stone or metal.

The idea in carrying on this work is first, to establish a basic net over the country by levelling over all township lines and setting permanent bench-marks at every township corner. This would give a very good idea of the general topographic features of any section of the country and would be the means of gaining the so-much-needed comparative elevations between the different parts of the country. This work would be carried on first in those districts where the settlement is greatest or where the greatest need for the information is anticipated. Then, when any person undertakes to develop any particular scheme of water-supply or conservation he can tie his detail survey on to any bench-mark which may be convenient and thus relate the elevations of his scheme (which are absolutely the keystone to any water-supply or water-conservation scheme) to the elevations of the surrounding rivers, reservoirsites, or benchlands, and thus be in a position to work intelligently and without waste of time and money.

The carrying on of this work, and the tabulating of the results by issuing the information in map form, might well be looked upon as an economic method by which the Dominion government might pursue its policy of developing the west by putting in the hands of corporations, companies and the public at large information which would allow them to become acquainted with the possibilities that exist of putting to commercial use Canada's vast water-resources which to-day in the west are, for the most part, lying idle and going to waste.

During the season of 1911 one party was operated in the Maple Creek district with a view to making a start on this work to ascertain how it may best be carried out and to gain some idea of its cost. The result, however, was very unsatisfactory on account of an unfortunate series of circumstances which resulted in very little work being done, the figures of cost, therefore, showing out of all proportion. The weather conditions were adverse, the country in which the party operated turned out to be exceptionally rough, and the services of the engineer in charge, who resigned at the close of the season's work, proved to be most unsatisfactory. The results of the work are published in this report in the form of a table showing the location and elevations of the points determined. (See page 191.)

In order to indicate the class of levelling work that was aimed at, the instructions that were given to the engineer in charge of the party are reproduced here:

INSTRUCTIONS FOR LEVELLING.

General Instructions:-

1. The lines run shall, as a rule, be the township lines, but section lines may be run exceptionally to avoid heavy bush or very bad country.

2. There will eventually be established a permanent bench-mark at every township corner. This will be done by a party that will follow the levelling party. The levelling party shall drive one 30-inch iron post at every township corner, leaving 4 inches projecting. The top of this post shall be used as a temporary bench-mark, from which the elevations will be transferred to the permanent bench-mark later. These posts should be planted within six feet of the township corner post and be located from it, and at the place where they will be the least liable to disturbance.

(Note.—The permanent bench-marks should have been set immediately, but they were not available till late in the season.)

3. The leveller shall get an elevation upon evely natural permanent bench-mark that he can find along the line, and his notes of its description and location should be full enough so that no trouble may be experienced in finding it in future. A cold chisel and hammer should be used for establishing bench-marks in rock.

4. At all township, section and quarter-section corners an elevation shall be taken, on top of the post, and also on the ground at the base of the post.

5. The location of all stream-crossings shall be noted, and an elevation taken on their high and low water marks. Small, unimportant stream-beds should have their cross-sections sketched, showing high and low-water elevations. Larger and more important

streams should have their cross-sections developed with the hand level, showing high and low-water elevations.

6. From every line run the leveller shall sketch in as much of the topography on both

sides of the line as he can, without leaving his level to do it.

Instructions re Instrument work:

1. The rodman shall carry a note book, in which he shall enter all the rod readings. 1. The rodman shall carry a note book, in which he shall enter all the rod readings. The leveller shall set the target on the rod and then the rodman shall note the reading of the rod in his note book. He shall then not touch the target but carry the rod to the level man, who shall then read the rod and note it in his level book. He shall then compare the reading he has in his level book with the reading marked down by the rodman in his note book. This rule is made to eliminate any chance of the rod being wrongly read.

2. Whenever the weather (high wind, rain, or 'boiling') is so bad that accurate readings cannot be taken the work should be discontinued.

annot be taken the work should be discontinued.

3. Foresights and backsights shall be of equal length, in so far as is possible. The level man shall have a column in his note book for distances, and every time he reads on a turning point he shall read the distance of the rod with the stadia wires and shall note this distance in the columns of his note book, and then between each bench-mark the leveller shall manipulate the length of his sights so that between each bench-mark the sum of the lengths of the foresights shall be equal to the sum of the lengths of the backsights.

4. The level must be examined daily, or oftener, if necessary, for adjustment; the especially important adjustments are the lines of collimation and the level bubble. The steel nears furnished must be used at all turning points, and in every case they shall be firmly

cally important adjustments are the lines of collimation and the level bubble. The steel pegs furnished must be used at all turning points, and in every case they shall be firmly driven into the ground before the rod is held upon them.

5. The rod shall always be plumbed with a rod level.

6. Bench-marks, or turning points, left at the termination of the work at night, or for rain or other causes, must be selected with great care and located in such a manner that there will be no danger of their being disturbed or tampered with, in order that the rod may be again held on the exact stat.

may be again held on the exact spot.

7. In the ordinary routine of work the two level men shall start at the same corner of a 7. In the ordinary routine of work the two level men shall start at the same corner of a township, and shall run over the township lines in different directions, and when they meet they shall check on each other at least once in every township. The maximum error of closure allowed will be 0.021 feet √ distance in miles, or the miles shall be re-run. In locating this error of closure, in order to avoid the duplication of work, it may be advisable, instead of running back on the township lines, to run down the centre line of the township.

8. As each township circuit of levels is completed the error of closure shall be divided up between the two levellers in the proportion of the distances they have run. The elevations of the township corner bench-marks shall be at once adujsted in the following manner:—correction to bench-mark elevation: levellers A's part of closure error = distance from initial point of township to B.M.; total distance run by leveller A; the corrections always being made in the right direction.

9. All the computation in figuring the errors of closure shall be shown in neat work in

9. All the computation in figuring the errors of closure shall be shown in neat work in the leveller's books, so that they may be referred to afterwards.

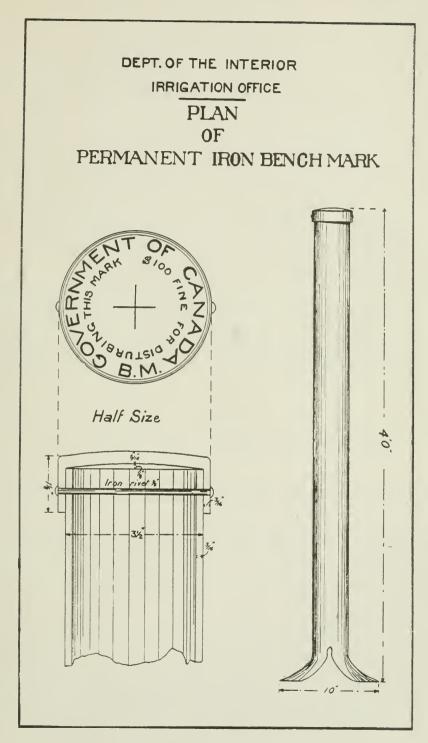
10. The leveller shall always keep his book indexed up to date, and every day's work must show the figures used in checking the notes, which must be done daily.

No. 49.

REPORT OF THE COMMISSIONER OF IRRIGATION ON RESERVOIR-SITE SURVEYS.

The carrying on of the work of reservoir-site surveys is the detailed development of special conservation schemes based upon the topographic network developed by the levelling operations. The remarks regarding the desirability of carrying on this work are noted in the report on levelling operations and apply also in this case. It should be stated that it is not proposed to carry this work to excess, but merely to inaugurate a policy which will make it possible to deal with the really important problems of conservation as they come up and within a reasonable time to develop them and properly and definitely dispose of them.

If this work is not done in considering, for instance, watersheds of an international character, Canada must be under a great disadvantage as compared with the United States, where most elaborate surveys of this kind have been carried on for years. Under the terms of the Waterways Treaty the details of the division of waters of St. Mary and Milk rivers are entrusted to a joint board of commissioners. In dis-



cussing all the questions in connection with this matter, the Canadian Commissioners cannot advisedly argue for the mode of division most beneficial to Canada without considering the question 'how much of the flood waters or late fall waters can be stored out of the streams in our own territory?' When these questions come up for consideration there will be a sad lack of information, while, on the other hand, the United States Commissioners will have all these data on their side available for reference. This case is cited merely as an instance of what the lack of this class of knowledge will mean to Canada in the future.

The work of this character which had been planned for the past season was upset by a special survey being made of the Bow river reservoirs under the direction of another branch of the Department after all arrangements had been made by the irrigation office to operate a party on this work. The early misunderstandings in connection with the matter, and the later necessary reorganization made the work very late in starting and it was, therefore, confined to a reconnaissance of the Oldman river at the Gap and of the proposed diversion from the South Saskatchewan river near Elbow. Saskatchewan, for supplying water for domestic purposes to that dry country in the vicinity of Moosejaw and Regina. The report on the first mentioned work was submitted to the Water-power Branch of the Department for action and the report on the latter is dealt with separately in this report.

With regard to the proposed diversion from the South Saskatchewan river there is, apparently, a feeling in the minds of many people in the west that the scheme is visionary. It cannot be denied that the scheme is one of great magnitude, involving large expenditure, and that it will require the most careful consideration of experts before it is undertaken, but the fact remains that there is a dry section surrounding Moosejaw and Regina (roughly speaking) within which no large cities or towns can flourish unless an adequate supply of good water for domestic purposes is secured, and the further fact is self-evident that the only available source of such supply is the South Saskatchewan river.

No. 50.

REPORT BY THE COMMISSIONER OF IRRIGATION

ON THE

PROPOSED SOUTH SASKATCHEWAN RIVER DIVERSION CANAL.

HISTORICAL.

Although this scheme has lately been taken up by the government of the province of Saskatchewan it should not be forgotten that the credit of first calling attention to the possibilities of the scheme lies with the irrigation office of the Department of the Interior. Mr. J. S. Dennis first mentions this scheme in his official report for the year 1894, again in the year 1895, and in 1896 published a map showing the location of the proposed canal.

REPORT OF WORK DONE DURING SEASON OF 1911, BY B. RUSSELL, C.E.

When Mr. Russell was instructed to undertake this work it was realized that because of the lack of funds to equip the proper field-parties he would not be able to do more than make merely a preliminary investigation. One proposition in connection with this scheme, which has been looked upon with some favour latterly, was the proposition to pump the water out of the South Saskatchewan river over the height of land and deliver it into the head-waters of the Qu'Appelle river. Mr. Russell's work was confined entirely to developing the critical elevation along these lines and his work consisted of running a series of level lines over several heights of land which

showed possibilities of feasibility. Mr. Russell was at this work for one month from August 15 to September 14; and had the assistance of only one rod man and a team and driver.

The results of all Mr. Russell's work is plainly set forth on the plans and profiles submitted in connection with this report, but for purposes of convenient reference the results may be set forth as follows:—

The height of land of Aiktow creek in township 24:—		
High-water level in river		feet.
Height of land, head of Qu'Appelle river	1,720	**
Difference of elevation	SS	46
The height of land of Sage creek in township 23:-		
High-water level in river	1,644	feet.
Height of land, head of Summit creek	1,916	**
Difference of elevation		
The height of land of Shellstone creek in township 21:-		
High-water level in river	1,672	feet.
Height of land, head of Thunder creek	1,975	64
Difference of elevation	303	66

All the elevations given above are to the datum of the Canadian Pacific Railway levels.

It should be noted that the pumping of water over the height of land of Shellstone creek would allow the water to run by gravity down to the city of Moosejaw

and from there down into the Qu'Appelle river.

The project of pumping the water over the Aiktow creek height of land and allowing it to flow down the Qu'Appelle river would probably be useless, as it would deliver the water into Buffalo Pond lake at an elevation of 1,627 feet, which is about 117 feet below the elevation of the city of Moosejaw. Then, allowing a grade in the Qu'Appelle river of two feet per mile, as the crow flies, the elevation of the water in the Qu'Appelle river at a point southeast of Regina (about twenty miles from Buffalo Pound lake) would be about 1,587 feet or 275 feet below the elevation of the city of Regina. The bed of the Qu'Appelle river is, moreover, of such a character, viz.: black swamp earth, that any water turned into it for domestic purposes would be badly polluted.

Mr. Russell also developed a cross-section of the South Saskatchewan river at a point about midway between the mouths of Aiktow and Sage creeks for the purpose of making a preliminary study of the cost of a dam. This section will give probably as small a cross-sectional area for a dam as any section that can be found on the river in this vicinity. It was also ascertained that the fall of the river water-service in townships 21 to 24, a distance of 31 miles, is 40 feet, or an average fall of 1.3 feet

per mile.

STUDY OF PUMPING AND HIGH LEVEL GRAVITY SCHEME.

Before proceeding with this short study it may be stated that this scheme is a very large one and will be very expensive. It is, therefore, impossible for any person to give an advised judgment on the matter until the topographical features of the country have been fully developed, and the feasibility of dam construction in the South Saskatchewan river fully probed. This study is, therefore, made without any of the requisite information being available, and it must be accepted only as a rough, preliminary study made in an attempt to point out what appears to be the most feasible scheme, together with a rough approximation of the cost.

The purpose to be attained by this scheme is to serve that dry country in what may be termed the Moosejaw and Regina districts, and the basis of the study is the

requirement to deliver a gravity supply as far east as Regina and at the elevation of the rails of the Canadian Pacific Railway in that city. The quantity of water to be diverted has been taken as stated in the application made by the government of the province of Saskatchewan, which is about 200 cubic feet per second.

It is submitted, as a matter of opinion only, that the only feasible scheme is to place a dam in the South Saskatchewan river and develop there enough water-power to pump the required quantity of water to a sufficient height on the side-hill of the river from whence it can be run by gravity to meet the requirements of the situation, which is to deliver a gravity supply at the elevation of the Canadian Pacific Railway at Regina. The supply must be delivered during both summer and winter for domestic purposes, and, with this end in view, the available water-power in the river has been based on the figures of minimum winter flow.

The cost of a gravity line has been estimated by assuming that the water would be carried in a circular reinforced concrete pipe. It has been assumed that the demand for water will be equal from the intake to the delivery at Regina, where a flow of 50 cubic feet per second has been allowed, and the total length of 170 miles of pipe line has, therefore, been divided into four sections having, from the intake on, earrying capacities, respectively, of 200, 150, 100 and 50 cubic feet per second. The excavation cost has been based on a level section cut for the trench sufficient to bury and cover the pipe everywhere with six feet of earth. In computing the cost of the dam the section used is that one taken in township 24 between Aiktow and Sage creeks, but, in order to suit the assumed scheme, the dam must be placed somewhere in townships 22 or 23. One fact alone which is liable to make the estimate of the cost of the dam seriously in error is that the bottom of the South Saskatchewan river is known to be most treacherous for the foundations of any structure, and no definite information whatsoever has been gained on this point.

The small-scale map accompanying this report shows the position of the dam and the location of the proposed pipe line, while the calculations following hereafter have been made in such a way that they may be read through understandingly by any person who has followed this preliminary discussion. The unit prices assumed in the estimate are understood to include the cost of many small details and incidentals which have not been calculated. For example, it will not be possible to obtain the minimum excavation section for the pipe line throughout, which will make the quantity of excavation much higher than that calculated.

In conclusion attention may again be drawn to the fact that this study is only a rough approximation and that nothing further can be attempted until the many controlling elements of the scheme have been fully developed by the carrying out of the proper surveys and also river borings to develop the possibilities of a dam foundation.

DETAILED DISCUSSION.

To find the height of dam necessary.

Argument.

 $H_{\rm g}$ = head required for turbines in river to pump $Q_{\rm c}$ into pipe.

 $Q_R = \text{available L. W. flow in river assumed} = 3000 \text{ c.f s.}$

C₁ = efficiency of turbines and direct connected centrifugal pumps assumed = 52%

 $C_2 = loss$ due to friction in pipes from pump to delivery assumed = 10%

 $H_c = \text{height of lift to pipe.}$

 Q_0 = quantity required in pipe assumed = 200 c.f.s.

Formula $H_R \times Q_R \times C_I \times (1-C)_2 = H_C \times Q_C$

Study.

Regina elevation	1,862	feet.
Length of canal	170	miles.
Grade of canal = 1 in 10,000 or 0.528 ft. per mile.		
Head required for canal = intake to Regina		
Intake of canal (Boldenburst St.) elevation		
L. W. natural at dam (about)	1,653	• • •
Head required at dam (H _R)	37	••
Top of dam	1,690	64
Lift required—top of dam to canal intake	261	66

To find the cost of the dam.

The dam section developed on the river gives a cross-sectional area from the river-bottom to the crost of the dam, 37 feet above the lower pool, of 115,000 square feet. A preliminary study of the cost of the dam was made by Mr. W. G. Bligh, M.I.C.E., based on a concrete dam of the arched buttress tyle. The dam-section used was a very economical one, but of a somewhat bold design, and a rough estimate based on it gave a cost of \$600,000. Owing to the uncertainty of the foundations and the many contingencies that might arise it would not be safe to estimate the cost of the dam at any less than \$1,000,000.

To find the cost of turbines and pumps.

Theoretic H.P. required = .001892 Q.H. = 12,600. Allow cost at \$15 per H.P. = \$189,000.

To find the cost of pressure pipes from pumps at dam to intake of concrete pipe line.

Q = 200 cu. ft. per second.

V = 3 s.f.

A = 67 sq. ft.

R = 4.6 feet (one large pipe).

Area plates required, including laps, 29 sq. ft. per ft. run.

Half-inch wrt. iron plates, weight per foot run, 580 lbs.

Cost, at 6 cts. per lb., about \$35 per foot run.

Cost for 1 mile, \$184,800.

To find the cost of concrete pipe.

Argument.

1:30 bbl. cement at \$3.00	. 55
1 cu. yd. stone at \$1.50	1.50
Total cost ingredients 1 cu. yd. concrete	\$5.95
Cement and stone	\$5.95
55 lbs. steel at 3 cents	1.65
Forms, labour, and materials	1.85
Mixing and placing concrete, labour	\$5
Placing steel at 0.2 cents	11
Bending steel at 0.06 cents	3
Moving forms.	30
Cost in place, 1 cu. yd. concrete	\$10.74
Superintendence, plans, contingencies, &c	
Total cost in place, 1 cu. yd. concrete	\$12.00

To	find	the	cost	of	excavation.
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Argument	A	ro	į.	m	e	n	t	
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Exeavation, eu. yd	
Cost per cu. yd	
Total cost, 1 cu. yd. excavation	45

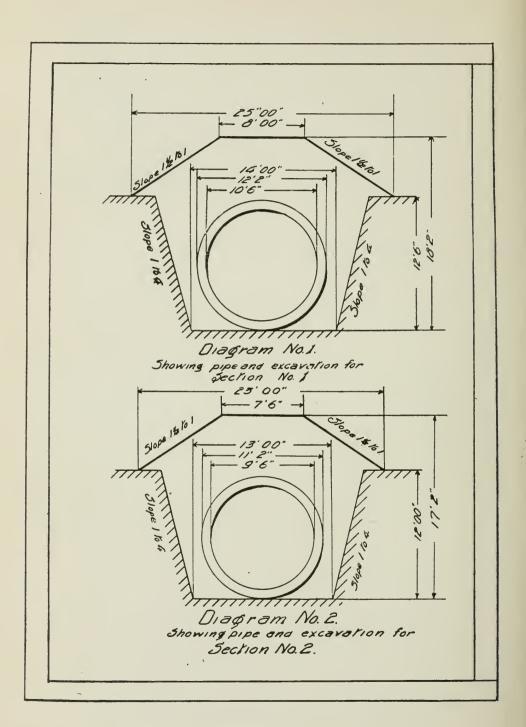
To find cost of pipe line.

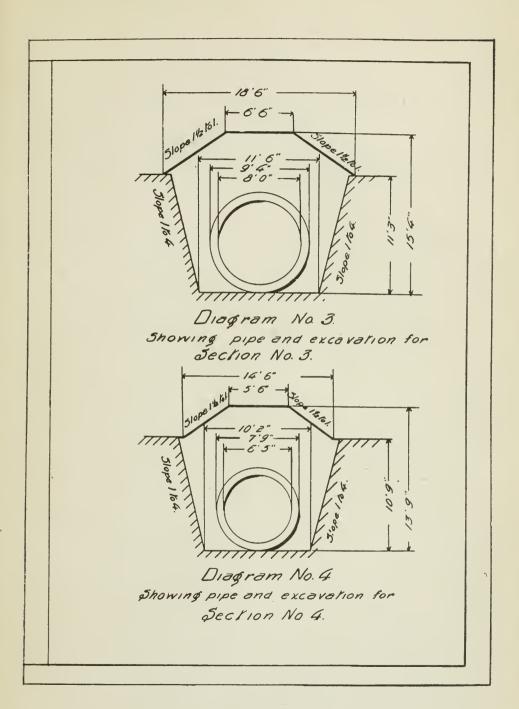
The grade throughout has been figured at 1 in 10,000 and the discharge of the pipe has been calculated by the Chezy-Kutter formula, using 'N' = 012.

Study.

Study.
Section No. 1, length 42 miles, capacity 200 c.f.s. (see diagram No. 1,). 243,714 cu. yds, concrete at \$12.00\$ 2,924,568 Cost per mile, \$69,632. 1,757,818 cu. yds. excavation at 45 cents 791,018 Cost per mile, \$18,834.
Total cost
Section No. 2, length 42 miles, capacity 150 c.f.s. (see diagram No. 2,). 222,192 cu. yds concrete at \$12
Total cost
Section No. 3, length 43 miles, capacity 100 c.f.s. (see diagram No. 3,). 152,633 cu. yds. concrete at \$12
Total cost\$ 2,441.308 Total cost per mile, \$56,774.34.
Section No. 4, length 43 miles, capacity 50 c.f.s. (see diagram No. 4,). 127,912 cu. yds. concrete at \$12
Total cost

Summary of estimate of cost. Cost of dam	189,000 184,800
Total cost, about	\$ 12,965,685 \$ 13,000,000





No. 51.

REPORT ON THE CURRENT METER RATING STATION AT CALGARY, ALBERTA, BY THE COMMISSIONER OF IRRIGATION.

The work of stream measurements has been carried on by the Irrigation Office, Department of the Interior, for a long period of years in the provinces of Alberta and Saskatchewan, but it was not until the early part of 1909 that the great importance of this work was recognized by the Department, and at that time a special Hydrographic Surveys Branch was organized under Mr. P. M. Sauder, C.E., from which time the work of stream measurements has been carried on systematically and extensively.

Prior to this time a current-meter rating station has been established on a slack-water-mill-pond on Bow river, at Calgary, but its equipment was never very satisfactory and it finally fell into bad repair and its use was discontinued. Along with the formation of the hydrographic surveys branch was considered the matter of establishing an up-to-date and efficient current-meter rating station, as it was realized that without this equipment, by which means all current meters used could be frequently rated, the current-meter records would be liable to serious errors.

No active steps were, however, taken in the matter until the winter of 1910, when the plans, specifications and estimate of cost for the station and equipment were prepared by the commissioner. The contract for the work was let to the firm of Jones, Blackshire and Lyttle, of Calgary, on May 29, 1911, and was completed by them on July 21, 1911. In carrying out the construction, the steel reinforcing, the steel rails, the cement and the cars were supplied by the Department, and the city of Calgary laid the water-supply pipe to the edge of the rating-station property. Everything else was included in the contract, except some small electrical fittings which were installed after the work was completed under the commissioner's supervision. The total cost of the station and equipment was \$4.475.39. The total estimated cost for the station was \$4,690.24.

In designing the work the aim was to devise the most perfect apparatus possible for rating the current meters and to create a permanent structure, so that it was early decided to use concrete in the construction of the necessary tank.

As no stretch of still water having a suitable length and depth was available, it was necessary to create a tank, and in studying its design two points had to be principally considered. First, as the water-supply had to be taken from the city mains, the tank had to be made proof against any leakage, as the city authorities were not willing to guarantee any large supply of water such as might be required if any serious leakage from cracks developed in the tank. Secondly, the cross-sectional water area was required as small as possible and yet of sufficient dimensions to guard against any 'following-on' movement of the water, in running the meters through the tank. To overcome the first difficulty a heavily reinforced structure was designed. such that on being emptied and exposed to the weather in winter no temperature cracks could develop, and the inside faces of the tank were waterproofed by Sylvesters' process. In deciding on the proper cross-section of the tank to overcome the second difficulty no data were obtainable, but with the tank as constructed no follow ing-on movement, or undue disturbance of the water, has been observed, even with the largest meters tested at velocities as high as ten feet per second. The length of the tank (250 feet) was adopted in order to bring the cost of the structure within the limits of the amount of money available, but provision has been made in locating

the tank for its future extension to a length of 500 feet, which is desirable in order to attain the highest degree of accuracy.

The several points referred to in the description of the station may be made clear by referring to the accompanying plates. The main features of the station are a car on which the current meter is mounted and by means of which it is then run through the water in the tank at different, uniform rates of speed. The three elements—the distance, the time and the number of revolutions of the meter—are mechanically measured, and from these the velocity of travel of the current meter through the water is related to the revolutions per second of the meter, which relation of revolutions to velocity constitutes the rating of the meter.

The concrete tank is 250 feet long, with an inside width and depth of 6 feet by 5 feet 6 inches, and the depth of water to be maintained is 5 feet. The floor and walls are 8 inches thick and are reinforced heavily, longitudinally and transversely, with 3-inch round, mild steel rods, in order to absolutely prevent any temperature cracks in the concrete. The concrete was specified as a mixture of 1 part Portland cement to 7 parts clean river gravel, to have at least 15 turns in a good machine, and to be placed wet and thoroughly tamped. All the interior thoroughly spaded, in order to create a smooth, close-grained surface to which to apply the Sylvesters' wash. All steel rods at joints were overlapped sixteen inches and it was specified that they were to be wired so as to have contact throughout the whole of the length. The tank floor was laid on an 8-inch foundation of large stones overlaid with smaller stones and gravel, in order to provide thorough drainage for any water which might leak through the tank, so that when the tank is emptied in winter and exposed to the weather no heaving might result from any water being lodged under the tank bottom. The soil beneath is of sandy character, which is permeable to water. The water supply is from a 2-inch iron pipe laid from the city mains, and c 6-inch tile drain 224 feet long, fitted with an iron gate valve at the tank, allows the tank to be emptied at any time into the Bow river. After the tank was completed all the inside faces were treated with two coats of Sylvesters' wash. The tank has been exposed, empty, to several cold snaps with the thermometer at thirty degrees below zero, and no cracking of the concrete has resulted, except a few hair-line cracks near the top of the walls. As regards the waterproofing, two observation shafts were left along the tank sides, running down to the foundation, and no leakage whatever was observed during the summer when the tank was full, except a slight dampness at the bottom of the side walls. It should be noted that another reason why it was desired to make the tank leakproof is that it is intended to obtain records of evaporation at the tank in future seasons.

The track laid along the side of the tank for the car is of 16-pound rails and laid to a gauge of 32\frac{3}{2} inches on 4 x 6-inch ties, fish plates and bolts being used at every joint. In laying the track the greatest care was exercised to get it laid solid and as level as possible, with close rail-joints, in order that the car should run as smoothly as possible. The measured run of the car is 200 feet, 25 feet being left at each end of the track in which to speed up the car, and the track at one end runs into the car house, where the car is kept under lock and key when not in use.

The original idea was that the car should be mechanically driven by an electric motor working on one of the axles of the car. It is an essential that the rate of travel of the car over its measured course should be uniform, but after much consideration it was found impossible to devise any method of control by which the rate of travel of the car could be kept uniform (without acceleration) throughout its run, if driven by an electric motor or other mechanical means. The car is, therefore, propelled by hand, but its design is such that an electric motor can be easily attached at any future date if any means can be devised of overcoming the difficulty mentioned above.

The main features in the design of the car have been copied from the car used by the Bureau of Standards, United States Government, at the current-meter rating

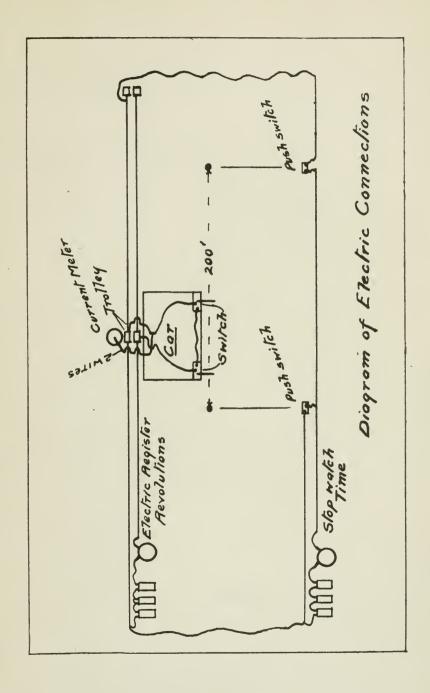
station, at Washington, D.C., blue prints of the design of which were kindly loaned by an officer of the Bureau of Standards. The main features of the car are that the axles run in roller bearings and the platform is attached to the front axle by a pinion joint, which makes the level of the platform entirely dependent on the rear axle, and thus any tendency of the platform to be twisted, due to uneven tracks, is overcome. It is thought that this arrangement eliminates practically all the sharp vertical movements which might otherwise be transmitted to the current-meter in its Two horizontal iron arms project from the car to the travel through the water. centre of the concrete tank. When rating the meter with the rod suspension, the meter rods are clamped in these horizontal arms. When rating the meter with a cord suspension and weights, the vertical cord is run down through the sockets used for clamping the meter rods, and a removable iron arm is used for attaching a wire stayline to the meter. The car wheels have solid flanges and all the iron in the car is of heavy section, the idea being that, with a heavy car running in easy bearings, it would be easier to maintain a uniform rate of travel than with a light car.

In making the run with the meter the count of the revolutions of the meter and of the time interval are both automatically registered in the car house by electric apparatus. The electric circuits from the car into the car house are made by two trolley wires above the car and one wire laid along the ties between the tracks. The circuit from the meter for the count of the revolutions is made by the two trolley wires, while the circuit for the time interval is made by the ground wire with one auxiliary wire, and one of the trolley wires is used for the return.

The diagram submitted will show the layout of the electric circuits clearly. The distance over which each run is made is 200 feet and this distance is marked by two rods set up vertically on the ties at the side of the car. On the car platform are two electric switches, with long arms projecting over the edge of the car platform, and these, engaging with the two rods at 200 feet interval, close the electric circuit for this interval, running through the commutator box on the meter, and thus the revolutions of the meter over the interval of 200 feet are transmitted to the car house, where they are registered by two electric registers set in series in order to check each other on the count. Some difficulty was experienced at first in getting the electric registers to count accurately when running the meters at high velocities, but this difficulty was overcome by always overhauling the commutator box on the meters and making a fine adjustment of the make-and-break apparatus therein. It will be seen that this method of counting the revolutions is liable to be slightly in error, owing to the fact that the registers do not take any count of the fractional revolution of the meter at either end of the run. This error, however, would be reduced to a minimum by increasing the length of the run.

The time interval is counted by a stop watch, which is operated by a simple electro-magnet, with a padded lever attachment, designed by the commissioner, in exactly the same manner that a stop watch is operated by hand. At each rod, marking the 200-foot interval, the circuit running through the stop watch via the two ground wires has inset a one-nipple push-switch, and lugs, underneath the car, make and break the circuit as the car passes these two points, thus starting and stopping the watch at the respective ends of the 200-foot run and thereby counting the time taken by the car in making the run of 200 feet.

The procedure adopted in rating the meter is to make 20 runs for each meter with velocities varying from 0.5 feet per second to 10 feet per second, the increments in velocity for each run from the low speed to the high being as uniformly distributed between the limits as possible. From the data thus gained the revolutions per second, with their corresponding velocities per second are computed, the points plotted, and among them the most probable curve is drawn. From the rating curve thus constructed the rating table is prepared for use in the field and office, showing



in convenient tabular form the velocities corresponding to the various revolutions per second of the meter from zero velocity up to 10 feet per second. It should here be noted that the rule in the service is not to measure any stream at a section where the average velocity falls below 0.5 feet per second, and a velocity of 10 feet per second is about the highest met with in practice.

Mathematically, the most probable curve is that drawn from values found from normal equations by the method of least squares. It is considered, however, that the method adopted of taking the values from a curve carefully plotted as noted is quite accurate enough to meet all practical requirements, and the saving of time and labour by using this method is very great.

For purposes of keeping a graphical office record of the successive ratings of the meters a separate sheet is prepared for each meter. On this is first plotted, for purposes of comparison, the standard curve for the meter (Gurleys' standard curve for all Price electric meters) and all succeeding ratings of the meter will be plotted on the sheet in different coloured inks, with notes as to the date of ratings, conditions of the meter, &c., until the confusion of many curves will require the preparation of a new curve sheet. Revolutions per second are plotted as ordinates to a scale of 4 inches to one revolution per second, and velocities in feet per second are plotted as abscissæ to a scale of 4 inches to 2 feet per second. For velocities up to 3 feet per second, an auxiliary curve is drawn with the velocity scale increased to 4 inches to 1 foot per second, to allow for greater precision in taking the quantities off the curve.

It is the intention to carry on extensive experimental work in order to determine the various conditions that affect the rating of the current meter, especially as it is desirable to rate every large meter using the two methods of suspension; that is, by meter rods and by cable with stay-line. With the limited time available during the past season it was possible to rate the meters only with the rod suspension. Some of the results obtained, however, are surprising, and worthy of note. The commissioner has had a lengthy experience with the use of the Gurley No. 600 large electric meter, and his idea has always been (and he knows that it was shared by other men of experience) that with continued use, on account of the pivot bearings constantly wearing, the friction was increased and that the revolution of the meter was thereby retarded. The experience of the past summer in rating nine of these meters has indicated that, after considerable use, the meters run fast instead of slow. evidence indicates that with considerable use the bearing points in the meter wear themselves smoother than they come new from the makers, and hence have less friction than when they are new. The experiments, however, have not been exhaustive enough to prove anything conclusively beyond the fact that, except when perfectly new, no current meter can be relied upon unless it is carefully and frequently rated. The new medium-size type of electric meter (Gurleys' No. 623) has been adopted by this office for the first time this year, and, therefore, no experiments could be made on worn meters of this type. Five meters of this type were tested, of which two had been in light use for one season and three were perfectly new. All of these gave a rating curve practically the same as the standard curve issued by Gurleys, but in every case showing the meter running a little faster than Gurleys' standard.

Of the small electric meters (Gurleys' No. 618) nine were tested and all showed nearly the same results, although four of them had been in use for two seasons and five of them were new. At low velocities the new curve coincided with Gurleys' standard curve, but as the velocities increased the new curve dipped below the standard, which means that the meter was running slower than the standard. This may have been due to the bending, at high velocities, of the small meter rods by which the meter was suspended from the car. This bending from the vertical of the meter rods was actually noticed to take place, but no opportunity was obtained to use a stay-line to keep the rods vertical and thereby test the effect of the bending on the rating

of the meter. As indicated above, it is the intention to carry on extensive experiments in the future to determine the effect of the method of suspension of the meter on the rating. In practice, all of the large streams are measured by suspending the meter in the stream with a cord and employing a stay-line to hold the meter up against the current. Under these conditions, especially with high velocities, there is a tendency for the meter to sway continually from side to side at right angles to the current, and it will be interesting and important to determine what effect this has on the revolutions of the meter. Identical conditions will not be obtainable at the rating station, as the length of the cord suspension will, of necessity, be much shorter than that used either from a cable-car station or from a highway-bridge station, and this factor will no doubt enter largely into the amount of sway that the meter will have. Four rating curves are submitted with this report, in order to show graphically actual results obtained in rating meters of different types during the past summer. Explanatory notes have been added (which do not appear on the original office copies) and the curves were selected to show typical cases.

Mr. V. A. Newhall had charge of all the meter ratings during the past season, and, under his direction, the working parts of the station were finally tuned up and the electric switches and recording apparatus were finally adjusted and improved to overcome difficulties met with in operation. To him, also, the commissioner is indebted for the notes on the behaviour of the several types of meters on being rated.

In conclusion it may be said that the irrigation office is prepared to rate any meters that may be sent in by any engineers or others desirous of having their current-meters tested, and a certified rating table will be prepared and returned with the meters. A small fee will be charged to cover only the actual time of the engineer and his assistant employed in making the rating and preparing the table and this fee will be based on the salaries paid to the men by the Department.

TABLES OF PRECIPITATION AND TEMPERATURE IN ALBERTA AND SASKATCHEWAN.

These tables have been prepared from the reports of the Meteorological Service of Canada, and old reports of the irrigation office at Calgary, and both rain and snow have been included under the head of precipitation by estimating ten inches of snow as equivalent to one inch of rain. The headings of the several columns will make the tables quite clear. The tables are being published in their present form in order to facilitate the study of the conditions of precipitation and temperature, both for the whole year and for the irrigation season, as they have actually existed during that period of years for which official records have been gained. It is hoped that the tables will prove useful and instructive in studying the question of water-supply as affecting irrigation.

TABLE OF PRECIPITATION AND TEMPERATURE AT BANFF, ALBERTA.

	Precipi	ITATION.	MEAN TEM	PERATURE.	
Year.	Total for Year.	Total for Irr. Season.	For Year.	For Irr. Season.	Remarks.
	In.	In.	Deg. F.	Deg. F.	
1895					Snowfall, 92.5.
896	15.86	5.65	34.3	50.9	
897	23.40	13.70	34.7	52.8	
898	20.58	13.86	35.5	52.0	
899	26.34	17.04	34.0	49.3]
900	23 · 29	13.36	37.3	51.0	
901	19.27	12.10	36.5	49.9	
902	30.59	21.21	34.8	49.7	
903	24.82	14.97	35.1	49.9	
904	14.80	6.70	36.4	51.8	
905	15.97	11.01	36.8	51.5	
906	14.58	8.58	37.5	52.6	
907	$\begin{bmatrix} 23.56 \\ 21.09 \end{bmatrix}$	14.89	34.8	49.9	}
908	21.56	10.96 8.15		52.42	
909	16:08	7.65	33·46 36·95	51.64 51.00	
910 911	19.17	10.47	33.21	49.70	
Mean for period	20.68	11.91	35.23	51.00	

TABLE OF PRECIPITATION AND TEMPERATURE AT PINCHER CREEK, ALBERTA.

V	Ркесірі	TATION.	MEAN TEM	IPERATURE.	70 1
Year.	Total for Year.	Total for Irr. Season.	For Year.	For Irr. Season.	Remarks.
	In.	In.	Deg. F.	Deg. F.	
1895	20.23	12.43	(Records not complete
1896		10-16	39.2	56.6	Rainfall=11.46. Records not complete.
1898 1899					No records.
1900	27.57	12.73 22.66	41·3 39·1	53·7 55·3	Records not complete
1903. 1904. 1905.	18:05 9:43 14:52	13.35 7.32 9.78	39·4 39·7 40·9	63·4 55·3 55·7	
1906		18.40	41.5	26.0	No records
1908 1909 1910	25.91	13.89 9.15	37 · 42	55·46 55·58	Records not complete
1911					. 11 11
Mean for period	19.28	12:98	39.81	56.34	

TABLE OF PRECIPITATION AND TEMPERATURE AT MACLEOD, ALBERTA.

	Precipi	ITATION.	MEAN TEM	IPERATURE.	_
Year.	Total for Year.	Total for Irr. Season.	For Year.	For Irr. Season.	Remarks.
	In.	In.	Deg. F.	Deg. F.	
1895	12.73 12.77 13.58	8 71 7 43 9 95	40 8 41 · 8 42 · 2	59·2 61·4 60·0	Records not complete
1899. 1900. 1901. 1902.	17.76 10.08 12.21	11.63 6.79 9.95 7.48	38·7 43·1 42·4	56.8 58.6 56.4 57.1	Records not complete
1903 1904 1905 1906	5·34 11·63 20·82	5·43 3·71 6·75 15·18	39·8 41·9 40·3	56.0 55.6 58.2 56.5	11 11
1907 1908 1909 1910	12:48 18:11 14:78	9·20 13·77 10·02	39·2 41·76 38·76 44·19	54·3 57·7 57·8 58·78	Records not complete
1911	13.25	9.41	38.66	55.42	n u

TABLE OF PRECIPITATION AND TEMPERATURE AT LETHBRIDGE, ALBERTA.

	PRECIPITATION.		MEAN TEM		
Year.	Total for Year.	fotal for Irr. Season.	For Year.	For Irr. Season.	Remarks
	In.	In.	Deg. F.	Deg. F.	
02	28·13	24·48	41.5	56.9	•
03	14·82	10·74	41.7	57.0	
04	11·40	7·33	42.4	60.2	
05.	13 78	10·24	43·7	60 · 1	
06.	22 48	16·60	43·7	59 · 9	
07.	15 50	11·75	41·4	57 · 0	
98	16 · 16	11 94	43·98	59·78	1
09	11 · 69	7 57	39·98	59·72	
110	7 · 34	4:16	44.88	59·98	
111	22 · 03	17:29	39.67	57·08	
Mean for period	16:33	12.21	42.29	58:76	

3 GEORGE V., A. 1913
TABLE OF PRECIPITATION AND TEMPERATURE AT CALGARY, ALBERTA.

	PRECIPI	TATION.	MEAN TEM	IPERATURE.	
Year.	Total for Year.	Total for Irr. Season.	For Year.	For Irr. Season.	Remarks.
	In.	In.	Deg. F.	Deg. F.	
85	12.91	9 32	37.05	53.6	
86	11.32	5.98	38 04	56.2	
87	13.69	9:12	33 86	54.1	
8	17.51 11.59	11:29 6:41	35·15 59·54	54·6 54·7	
9	14.94	10.86	35.68	54.5	
)1	10.44	8.74	37.71	55 0	
2	7.91	5.13	36.12	53.6	
3	11.05	7:17 •	31.76	53:9	
4	11 . 71	8.65	37 17	55.3	
5	15.12	10.99	36.66	53 1	
6	16.05	8.13	36.00	55.6	
7	20.58	15:02	37.10	57.8	
S	15.58 26.15	11.84	37.80	56.6 53.0	
9	17.57	21 '46 12 18	34 70 38 60	54.1	
0	22.31	16:47	39.20	53.3	
2	34.57	30.75	37.00	52.7	
3	22.77	19.91	37.50	52.6	
4	11 89	8.71	36.90	54.2	
5	14.12	10.02	39.00	54 6	
6	16.24	13.50	39.30	55.6	
7	14:96	11.48	36.40	52 66	
8	18.25	15.68	40.69	56.02	
9	16.03	11.98	35 97	55:78	
0	11:79	8 53	37.88	54.98	
1	19:38	15.08	35 67	52.68	
Mean for period	16.16	11.99	36 99	54 47	

TABLE OF PRECIPITATION AND TEMPERATURE AT EDMONTON, ALBERTA.

Year.	Precipitation.		MEAN TEM	PERATURE.	Remarks.	
	Total for Year.	Total for Irr. Season.	For Year.	For Irr. Season.		
	In	In.	Deg. F.	Deg F.	<u> </u>	
1895. 1896 1897. 1898. 1898. 1899. 1900. 1901. 1902. 1903. 1904. 1905. 1906. 1907. 1968. 1999. 1910.	14 · 68 15 · 24 14 · 55 10 · 91 20 · 89 27 · 81 27 · 53 20 · 66 21 · 06 18 · 87 15 · 56 9 · 88 14 · 93 20 · 67	8 · 99 8 · 89 10 · 93 6 · 68 15 · 30 17 · 73 21 · 19 16 · 36 15 · 05 11 · 52 12 · 98 10 · 47 4 · 94 13 · 57 ' 9 · 01 11 · 05 17 · 05	36·7 34·8 36·7 38·2 34·6 37·8 39·0 36·9 37·6 36·1 39·6 35·2	54·6 56·0 58·3 58·5 54·9 55·8 55·1 55·2 54·5 55·6 56·9 57·3 53·4 56·7 56·7 50·6 55·66	Records not complete.	
Mean for period	17:74	12:45	36.76	55.95		

TABLE OF PRECIPITATION AND TEMPERATURE AT MEDICINE HAT, ALBERTA.

	Precip	TATION.	MEAN TEM	PERATURE.	
Year.	Total for Year.	Total for Irr. Season.	For Year.	For Irr. Season.	Remarks.
1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1393 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1909 1910	In. 1 · 55 14 · 93 9 · 37 6 · 72 9 · 89 14 · 54 7 · 98 9 · 13 13 · 65 12 · 24 14 · 60 13 · 14 14 · 13 17 · 88 17 · 27 45 · 90 22 · 28 21 · 39 20 · 80 13 · 90 9 · 70 8 · 99 12 · 62 6 · 86 10 · 22 9 · 80	In. 11:27 6:77 4:02 7:55 12:26 5:09 7:16 9:41 7:03 8:38 8:16 9:84 9:33 10:41 7:73 15:97 13:52 15:79 9:41 8:03 5:93 6:81 9:81 9:81 4:89 7:83 7:16 5:19 10:85	Deg. F. 37.77 42.67 42.67 42.67 42.77 37.78 38.64 42.42 39.67 41.34 39.69 37.15 41.48 39.70 39.90 40.90 39.90 40.90 43.60 43.30 41.50 41.90 42.00 43.80 48.00 44.69 41.13	Deg. F. 59 9 61 5 64 0 60 8 60 5 61 2 61 6 61 4 61 6 62 4 59 1 2 63 6 62 1 59 9 62 2 61 8 62 4 59 9 62 2 61 8 62 4 63 18 63 18 63 62 62 44 60 46	Oct., Nov., Dec.
Mean for period	12.99	8.75	41 · 22	61.37	

TABLE OF PRECIPITATION AND TEMPERATURE AT SWIFT CURRENT, SASKATCHEWAN.

· - Year.	PRECIP	ITATION.	MEAN TEMPERATURE.		Remarks.	
,	Total for Year.	Total for Irr. Season.	For Year.	For Irr. Season.	-	·
	In.	In.	Deg. F.	Deg. F.		
1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1900 1901 1902 1903 1904 1905 1906 1907 1908	10 62 18 01 14 09 10 46 17 50 24 55 20 25 13 87 9 66 12 33 14 11 16 24 15 25 19 38 14 60 18 58 17 64 18 38 12 84 15 68 19 02 13 17 12 60 19 26 10 47 14 28	5·17 12·17 8·94 6·73 10·14 16·16 10·42 6·80 5·80 9·46 9·32 11·24 9·37 14·91 11·52 14·86 13·99 13·68 8·37 12·61 13·72 8·56 5·82 16·60 7·84 10·95	37 · 62 31 · 73 35 · 37 39 · 02 36 · 02 36 · 76 35 · 90 33 · 78 38 · 03 36 · 60 37 · 70 38 · 90 35 · 50 40 · 20 38 · 40 38 · 20 37 · 50 40 · 10 39 · 80 35 · 80 37 · 90 36 · 76 38 · 90 37 · 90 38 · 90 38 · 90 40 · 20 38 · 90 40 · 20 38 · 90 40 · 20 40 · 40 · 40 · 40 · 40 · 40 · 40 · 40	60·7 57·4 57·5 58·0 57·5 61·3 56·6 59·0 62·1 59·1 60·8 59·6 58·5 58·5 58·7 55·1 59·6 58·5 58·6 58·7 55·6 58·6 58·6 58·7 55·7 55·8	Records not	com-
Mean for period	15:49	10.28	37:48	58.2	•	

TABLE OF PRECIPITATION AND TEMPERATURE AT CHAPLIN, SASKATCHEWAN.

37	PRECIP	ITATION.	MEAN TEA	IPERATURE.	D	
Year.	Total for Year.	Total for Irr. Season.	For Year.	For Irr. Season.	Kei	marks.
	In.	In.	Deg. F.	Deg. F.		
883	2 20 18·94	12.08	34.24	60.48	Oct., No	
885 886 887	5.37	3.63 2.05	34 · 97	56·14 61·06	Record 1	not complete
.888 .889	3·78 5·26	1.86 1.88 1.98	35 · 81 39 · 91 38 · 13	60.66 61.94 59.96		
891 892			37.72	60 80	11	17
893. 894. 895.	2·91 4·08 5·58	0.72 0.72 2.52	34·21 37·19 34·30	62 00 62 28 54 60		
896. 897. 898.	9.66 6.56 6.40	5·41 2·77 3·73	34.60 35.00 36.80	57:30 60:50 61:10		
899 900 901	5·90 4·77 4·42	3·61 1·84 2·30	33·10 38·00 37·60	56:00 59:10 58:70		
902	9.26	6.32	37:50	59.10	11	11
904 905	11.63	6.75		60.60	11	н
906 907	20·23 24·08	11·90 14·93	36·10 30·90	57.60 52.72		
908	15·11 22·13	7·99 16·01	35·78 33·19	56·92 58·32		
910 911	13 29 20 48	9·42 13·32	37·56 32·58	56.60 54.86		
Mean for period	9.87	5.81	35.64	58.72		

TABLE OF PRECIPITATION AND TEMPERATURE AT MOOSEJAW, SASKATCHEWAN.

	PRECIP	ITATION.	MEAN TEMPERATURE.			
Year.	Total for Year.	Total for Irr. Season.	For Year.	For Irr. Season.	Remarks.	
	In.	In.	Deg. F.	Deg. F.		
1895 1896 1897		3.23	33·7 33·3 33·8	56·1 56·9 60·1	Rainfall 9:32 in	
1898			34.3	57.4	Precipitation for year not known. Rainfall 8.02 in. snowfall not	
1899		11.18	32.1	55-9	known. Rainfall 12:04 in.;	
[900			36.3	58:7	known. Precipitation for year not known.	
1901		12.90	36.5	57.5	Rainfall 12.75 in.; snowfall not	
1902		9.26	34.8	55.5	Rainfall 9.73 in. snowfall not	
903 1904		15 97 11 56	34 3 33 2	54·6 55·8	Rainfall not known. Rainfall 12:53 in. snowfall not	
		16·02 14·39	36·5 36·7	56.8 58.2	known.	
907		8:08	31.5	52.7	Rainfall 9.20 in.; snowfall not known.	
909	18:94	14.95	35.11	60.3	Records not complete.	
.910		9·13 11·69	38.98	58·4 56·6	Records not complete.	
Mean for period	16:75	11.53	34.72	56.9		

TABLE OF PRECIPITATION AND TEMPERATURE AT REGINA, SASKATCHEWAN.

77	PRECIPI	TATION.	MEAN TEX	IPERATURE.		
Year,	Total for Year.	Total for Irr. Season.	For Year.	For Irr. Season.	Rema	ırks.
	In.	In.	Deg. F.	Deg. F.		
83 84 85 85 86	11:46 4:89 1:90 2:42	4·29 7·91 1·01 0·29 1·43	32·81 32·92 30·54	55 90 60 54 57 80	May, June, Records not	
88	10·75 4·39 13·63 14·82 12·52 8·05	6:43 1:61 9:55 11:14 7:35 3:54	31 · 63 36 · 49 34 · 17 33 · 21 31 · 52 30 · 17	57:70 58:04 57:32 56:56 56:98 58:06		
94 95 96 97 98	11 30 18 90 9 32 13 28	2:74 9:14 14:31 5:53 11:45	32 · 20 32 · 40 33 · 20 32 · 80	61 · 48 56 · 00 57 · 30 59 · 50 57 · 50	May, June,	July.
99	11 · 81 19 · 02 15 · 22	7·93 9·61 16·07 13·10	32.00 35.30 35.50	55.60 59.40 58.30 54.90	Records not	complet
03 04 05 06	15:38 18:05 18:81	13 58 10 48 14 78 14 02	33:50 32:10 35:00 35:80	55.00 55.40 56.30 58.10	11	ti .
07	$\begin{array}{r} 14.17 \\ 14.24 \\ 20.27 \\ 13.81 \\ 18.55 \end{array}$	11.63 9.48 16.12 10.16 13.41	34.75 32.42 36.30 31.88	56:56 58:56 56:12 55:26	**	11
Mean for period	12.67	8.89	33.19	57:31		

TABLE OF PRECIPITATION AND TEMPERATURE AT QU'APPELLE, SASKATCHEWAN.

	Precip.	ITATION.	MEAN TEM	IPERATURE.		
Year.	Total for Year.	Total for Irr. Season.	For Year.	For Irr. Season.	Remarks.	
	Tn.	In.	Deg. F.	Deg. F.		
1895 1896 1897 1898 1899 1900 1900 1901 1902 1903 1904 1904 1905 1906 1907	11 · 23 21 · 63 12 · 65 21 · 65 19 · 25 16 · 52 26 · 47 24 · 37 20 · 09 22 · 22 24 · 57 20 · 39 18 · 53	6:70 15:01 8:38 14:24 11:75 9:69 16:05 14:44 15:53 11:92 19:73 13:14 14:76	33·0 33·1 34·0 34·2 32·1 36·3 36·3 35·7 35·7 35·0 34·0 37·0 37·2	55·5 57·1 59·7 57·7 55·8 59·6 58·2 56·7 55·3 56·3 57·0 59·1	R e c o r ds not complete.	
1908	18:69 25:75 20:66	10.14 17.52 13.52	36·0 32·9 36·8	5619 5719 5517	Records not complete.	
Mean for period	20:25	13:28	34.8	57.2		

TABLE OF PRECIPITATION AND TEMPERATURE AT INDIAN HEAD, SASKATCHEWAN.

$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Year. °	Precipitation.		MEAN TEMPERATURE.			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				For Year.		Remarks.	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		In.	In.	Deg. F.	Deg. F.		
1911 92.69 15.75 29.1 56.9	1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909	20 63 15 46 23 26 16 01 18 95 20 09 22 77 17 61 18 13 18 31	16 03 9 84 11 84 17 -42 10 49 14 -99 11 -45 18 -45 11 64 14 65 10 96 14 -08	32 3 33 1 33 3 31 5 35 5 35 5 35 1 34 2 34 1 32 7 36 2 36 4 31 6 35 6 33 2	56:77 59:73 55:99 59:22 58:33 56:00 55:11 55:88 56:6 52:6 57:22 58:7	Records not complete. Ann. rainfall 11 19 in Records not complete. " " Records not complete.	

TABLE OF PRECIPITATION AND TEMPERATURE AT BATTLEFORD, SASKATCHEWAN.

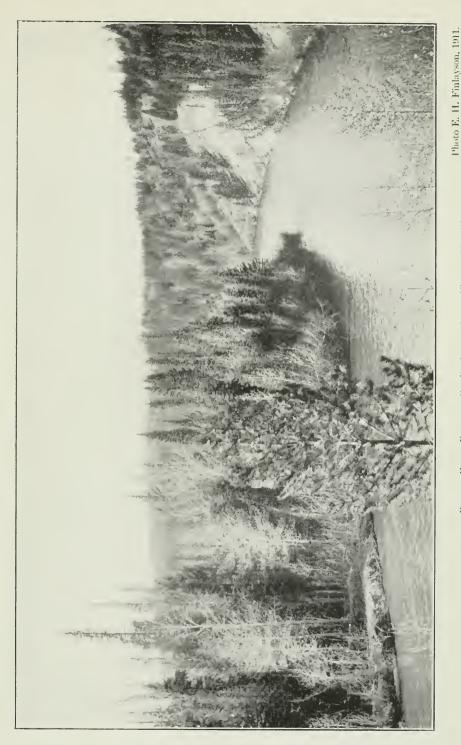
Year.	Precipi	ITATION.	MEAN TEM	PERATURE.	-
	Total for Year.	Total for Irr. Season.	For Year,	For Irr. Season.	Remarks.
•	In.	In.	Deg. F.	Deg. F.	
1891 1892 1893 1894 1895 1896 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1909 1909	11 '06 10 95 13 '47 12 '01 12 '93 16 '53 14 '24 18 '42 20 '41 16 '57 13 '49 16 '06 10 '62 16 '64 10 '11 15 '92 9 '62 7 '85	7 · 27 10 · 07 9 · 34 9 · 33 10 · 17 8 · 35 13 · 62 9 · 50 14 · 34 26 · 71 12 · 47 9 · 40 11 · 46 10 · 38 8 · 79 7 · 88 8 · 81 12 · 27 8 · 85 7 · 38 16 · 87	34·03 30·81 34·92 32·70 32·50 34·00 34·00 32·40 34·90 35·70 34·30 33·90 33·40 37·10 36·80 32·20 35·13 30·52 36·50	57:28 58:26 56:98 59:46 54:90 58:90 58:90 56:80 57:40 56:50 57:40 56:50 57:40 56:50 57:40 56:50 57:40 56:50 57:40 56:50	Re ords not complete
Mean for period	13.55	10.63	33 99	57:47	

TABLE OF PRECIPITATION AND TEMPERATURE AT SASKATOON, SASKATCHEWAN.

Year.	Precipitation.		MEAN TEM	PERATURE.		
	Total for Year.	Total for frr. Season.	For Year.	For Irr. Season.	Rena	erks.
	In.	In.	Deg. F.	Deg. F.		
895					Records not	complete
.896					11	11
897					tt.	- 11
898					- 11	31
				58.7	11	11.4
900				56·7	71	11
902			31.7	54:0	11	11
903			31.5	55.1	11	11
904	19:50	12.81	31.7	54.7		14
005	10.85	9:14	34.9	55.6		
906	19.51	12.81	31.7	51.7	Ì	
007	10.38	7:77	30.1	52.6		
008	14.15	9.68		56:9	11	0
09	15.87	11:09	32.03	59.72		
010	10.75	8:97	36.23	56:40		
911	19:42	13.08	31.92	55 08		
Mean for period	15:05	10:67	32:42	55:85		

TABLE OF PRECIPITATION AND TEMPERATURE AT PRINCE ALBERT, SASKATCHEWAN.

Year.	Precip	ITATION.	MEAN TEMPERATURE.			
	Total for Year.	Total for Irr. Season.	For Year.	For Irr. Season.	Remarks.	
	In.	In.	Deg. F.	Deg. F.		
1895	14:14 19:64 18:03 15:79 29:88 22:40 19:46 26:01 16:87 16:60 19:27 17:05	8:67 10:11 10:46 8:90 21:51 15:41 14:00 13:83 10:50 10:69 14:08 8:71	31·8 30·6 32·4 32·7 30·5 33·2 34·0 33·2 32·2 31·7 34·9 34·5	54:7 55:8 57:7 56:7 55:0 56:4 56:4 53:4 53:4 54:6 56:7	Records not complete.	
1908	18:64 7:40	11:37 3:88	30 · 95 35 · 03	57·98 55·42	" "	
Mean for period		13:24	32.69	55.71		



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Photo G. H. Edgecombe, 1911. View in Bighorn River District, above the Falls of the River.



Photo G. H. Edgecombe, 1911. Athabaska Forest Reserve : View in Stony River District immediately north of Jasper Park. $25-vi-17\frac{1}{2}$





Photo J. T. Blackford, June, 1911. Norway House Indians Taking the Pledge to Help in the Prevention of Forest Fires. Chief Councillors in the Foreground.



 $\qquad \qquad \text{Photo E. F. Drake Oct., 1911.} \\ \text{Fire Patrol Boat No. 1 at Athabaska Landing.}$





Photo W. J. Vandusen, 1911. Porcupine Forest Reserve: Pack Train passing through a Grove of Jack Pine.



Photo W. J. Vandusen, 1911. Porcupine Forest Reserve: Slash and High Stumps Left after Lumbering. Sec. 35, Tp. 38, Rg. 28, west of 1st Meridian.



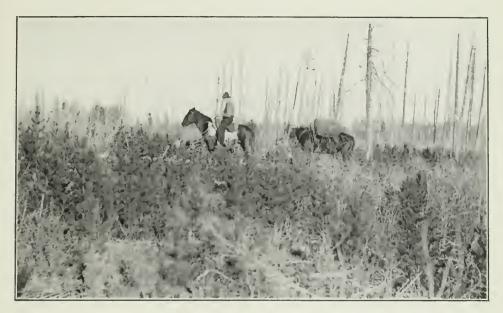


Photo D. Roy Cameron, 1911. Lesser Slave Lake District: Lodgepole Pine Reproduction Tp. 63, Rg. 7, west of 5th Meridian.



Photo D. Roy Cameron, 191!. Lesser Slave Lake District: Part of Great Brulé at Head-waters of Assineau River. Tp. 72, Rg. 8, west of 5th Meridian.



Lesser Slave Lake District: Lodgepole Pine, Slopes Type. Head-waters of Assineau River

Photo D. Roy Cameron, 1911.





Photo G. H. Edgecombe, 1911. Brazeau Forest Reserve: High Stumps and Slash Left by Unregulated Lumbering.



Photo E. H. Finlayson, 1911. Athabaska Forest Reserve: Typical Poplar-pine Country above Athabaska Flats.





Photo G. H. Edgecombe, 1911. Athabaska Forest Reserve: Black Spruce Swamp, after Fire. Tp. 51, Rg. 25, west of 5th Meridian.



 ${\it Photo~G.~H.~Edge combe,~1911.}$ Clearwater Forest Reserve : Kootenay Plains and Brazeau Range.





Photo G. H. Edgecombe, 1911. Athabaska Forest Reserve : Falls on Creek running into Hay River.

Tp. 55, Rg. 25, west of 5th Meridian.



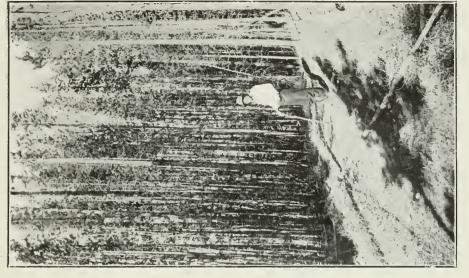


Photo D. Roy Cameron, 1911.
Lesser Slave Lake District: Pure Stand of Lodgepole
Pine, South of Lesser Slave Lake.
Tp. 67, Rg. 8, west of 5th Meridian.

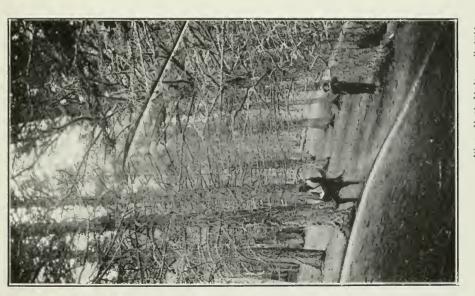


Photo E. G. McDougall, 1911.

Porcupine Hills, Alta.: Forest of Douglas Fir, partly Fire-killed.

Sec. I, Tp. 15, Rg. I, west of 5th Meridian.

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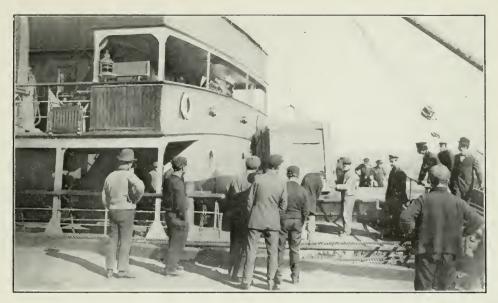




Photo E. G. McDongall, 1911.

A Burn in the Porcupine Hills, Alta, showing Reproduction, which is endangered by Fire.





 ${\it Photo E. F. Drake, 1911.} \\ {\it Landing Reindeer from Canadian Government Steamer 'Montmagny' at Quebec.}$



Reindeer in Corral at End of Railway.

Photo E. F. Drake, 1911.



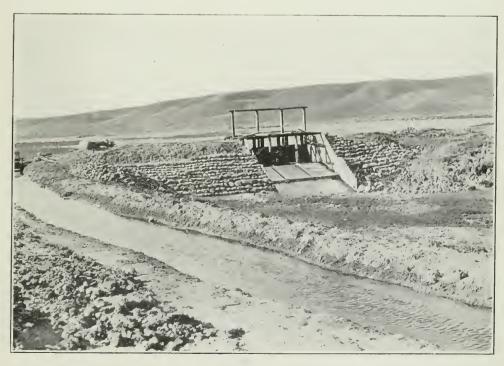


 ${\it Photo R. J. Burley, 1911.}$ Blue-joint Hay Growing on an Old Barren Gumbo flat after One Year's Irrigation.





. Photo F. T. Fletcher, 1911, Typical Prairie Reservoir under Construction, N. C. Nelson, Tp. 5, Rg. 24, W. 3rd M.



Wastegate, MacKinnon Brothers' Scheme, Tp. 5, Rg. 1, W. 4th M.





Irrigation Inspecting Engineers' Camp in the Cypress Hills.

Photo R. J. Burley.



Irrigation Inspecting Engineer Moving Camp.

Photo R. J. Burley.





A Four-horse Team Moving Camp.

Photo F. T. Fletcher, 1911.



Photo E. F. Drake, 1911. The Head-waters of Battle Creek in Cypress Hills Forest Reserve.





Irrigated Oats — H. B. Freel, Tp. 6, Rg. 23, W. 3rd mer.

Photo R. J. Burley, 1911.



 ${\it Photo F. T. Fletcher, 1911.}$ Canadian Pacific Railway dam at Gull Lake, Sask., for station water-supply.





Irrigated Barley on Enright & Strong Project. Tp. 6, Rg. 23, west of 3rd Meridian.

Photo R. J. Burley, 1911.



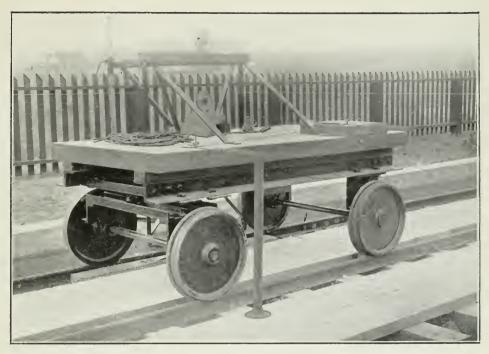


Photo F. H. Peters, 1911. The South Saskatchewan river at Elbow, Sask.



 ${\it Photo F. H. Peters, \ 1911.}$ A typical view of the Qu'Appelle river, north of Tugaske, Sask.





View of Current Meter Rating Car, showing trolleys and switches.



End view of Current Meter Rating Car, showing car house behind





General view of the Current Meter Rating Car at rest.



The Current Meter Rating Car in motion.

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